

ENVIRONMENTAL QUALITY MANAGEMENT, INC.
1310 Kemper Meadow Drive • Suite 100
Cincinnati, Ohio 45240
(513) 825-7500
FAX (513) 825-7495

July 25, 1998

Rose Ellison
U.S. EPA Region V, Emergency Response
9311 Groh Road
Grosse Ile, MI 48138-1697

Re: EPA Contract No. 68-S3-5001
Delivery Order No. 5001-05-717
Avery Site, Detroit, Michigan

Dear Ms. Ellison:

Enclosed please find the final report for the sample Sludge 1, Drum #24 taken on June 29, 1998 at the above referenced site. The sample was delivered to DLZ Laboratories, Inc. in Lansing, Michigan for analysis. The sample was analyzed for Total Polychlorinated Biphenyls (PCBs) by EPA Method 8082, TCLP Metals (RCRA, Copper, and Zinc) by Methods 1311/6010 and 7470, Flashpoint by Method 1010, BTU/lb by Method ASTM D240, Total Petroleum Hydrocarbons by Method E418.1M, and pH by Method 9045. The data package was sent to Environmental Quality Management, Inc.(EQ) upon completion of the analysis. It appears that all information in the data package has been provided and no quality control exceptions were noted:

Per your request, data validation has not been performed. The enclosed data package has been reviewed based upon method requirements and the OSWER Directive. If you have any questions regarding this report, please feel free to contact me at 800-500-0575.

Sincerely,

ENVIRONMENTAL QUALITY MANAGEMENT, INC.


Jackie Doan
QA/QC Chemist



ENVIRONMENTAL TESTING • COMPLIANCE ANALYSES
INDUSTRIAL HYGIENE

ANALYTICAL RESULTS AND QUALITY ASSURANCE REPORT

**U. S. EPA Emergency Response Cleanup Services
Avery Street Site, Detroit, Michigan
EQ PN 1117-10-4**

DLZ LAB ID NUMBERS: DL20255-1

Document 1 of 1 7/23/98

SUBMITTED TO:

**Ms. Jackie Doan
QA/QC Chemist
Environmental Quality Management, Inc.
1310 Kemper Meadow Drive
Cincinnati, OH 45240**

SUBMITTED BY:

**DLZ LABORATORIES, INC.
1120 MAY STREET
LANSING, MICHIGAN 48906
Tel: (517)374-9656
Fax: (517)374-6910**

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Method Blank Results

Laboratory Control Sample Results

Volatile Compounds Initial Calibration Reports

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Section E QA/QC Support Documentation- TCLP Metals (RCRA + Cu,Mn)

Sample Hold Time Table

Total Mercury (Atomic Absorption, Cold Vapor Technique)

(EPA Method 7471A & 7470A)

Total Michigan 10 Metals (Cr, Cu, Zn, As, Se, Ag, Cd, Ba, & Pb)

with Inductively Coupled Plasma-MS

(EPA Method 3005, 3050AMOD, 3050B, & 6020)

Section F QA/QC Support Inorganics

BTU (ASTM D240)

Flash Point (EPA SW846 1010)

Total Recoverable Petroleum Hydrocarbons (418.1M)

Total Solids (2540G)

pH (EPA SW846 9045)

CASE NARRATIVE

A total of one (1) grab sludge sample was collected by a representative for Environmental Quality Management on behalf of the US Environmental Protection Agency Office of Enforcement, Region V on June 29, 1998. This sample was received by DLZ Laboratories, Inc. Michigan facility on June 30, 1998. Portions of this sample were analyzed for: Total PCBs, Flash Point, pH, Total Solids, Total Recoverable Petroleum Hydrocarbons, BTU, TCLP Metals, TCLP Volatiles, and TCLP Semi-volatiles. These analysis were performed in accordance with USEPA SW846 Methods and ASTM Methods as specified in the work plan.

A discussion of each element present in Section B, C, D, E, and F of this final report/quality control package follows.

PCB/ PESTICIDE SUMMARY SECTION B

Sample Holding Times

All samples from this set were analyzed within hold time criteria specified in SW846.

System Monitoring Compound Recovery

All system monitoring compounds met established laboratory generated as well as SW846 recommended control limit criteria for PCB analysis. These recoveries are listed as part of the analytical report.

Matrix Spike/Matrix Spike Duplicate Recovery

All Matrix Spike, Matrix Spike Duplicate and RPD recovery results met established laboratory generated as well as SW846 recommended control limit criteria for the PCB scans.

Method Blank Summary

No PCB pattern matches were detected at or above the Contract Required Detection Limit (CRDL) in the Method Blanks corresponding to this sample set for Polychlorinated Biphenyl Compounds.

Initial Calibration

A minimum (5) point calibration was performed for each PCB surrogate and the Arochlor 1016/1260 PCB congener mix. No PCB pattern matches were found in the samples analyzed which would indicate the presence of the selected PCBs at reportable levels. Each targeted PCB congener grouping met SW846 Method 8082 RSD criteria.

Continuing Calibration

The Continuing Calibration Verification Standards (Blank Spikes) analyzed with this sample set all met laboratory generated and SW846 Method 8082 continuing calibration criteria.

Practical Quantitation Limits

The Practical Quantitation Limit for PCBs did not meet the Contract Required Detection Limit (CRDL) for each matrix type analyzed. The matrix contained interferents which required dilutions to obtain an analytical result for the determination.

SEMI-VOLATILE COMPOUNDS SUMMARY SECTION C

Sample Holding Times

All samples from this set were analyzed within hold time criteria specified in SW846.

System Monitoring Compound Recovery

All system monitoring compounds met established laboratory generated as well as SW846 recommended control limit criteria for Semi-Volatile analysis. These recoveries are listed as part of the analytical report.

Matrix Spike/Matrix Spike Duplicate Recovery

All Matrix Spike, Matrix Spike Duplicate and RPD recovery results did not meet established laboratory generated as well as SW846 recommended control limit criteria for the Semi-Volatile scan. The matrix chosen for the batch QC is not a good representative for this sample matrix behavior. This MS/MSD pair showed surrogate recoveries that were also out of control and interferences in the chromatography. The LCS/LFB run with this batch shows controlled recoveries. As a result, data developed for this batch for samples not having the same type of matrix as the MS/MSD pair is not flagged with low MS/MSD recovery on the analytical report. Surrogate recoveries for this sample do not indicate compound recovery problems for the Contract Required Detection Limits with the exception of pentachlorophenol.

Method Blank Summary

No selected semi-volatile compounds were detected at or above the Contract Required Detection Limit (CRDL) in the Method Blanks corresponding to this sample set.

Initial Calibration

A minimum (5) point calibration was performed for each semi-volatile surrogate and the targeted semi-volatile compound mix. Each targeted analyte met SW846 Method 8270C RSD criteria.

Continuing Calibration

The Continuing Calibration Standards analyzed with this sample set all met laboratory generated and SW846 Method 8270C continuing calibration criteria.

Practical Quantitation Limit

The Practical Quantitation Limit for the selected semi-volatile components met the Contract Required Detection Limits (CRDLs) with the following exceptions: The detection limits were raised in the case of the determination for pentachlorophenol due to matrix interferences.

VOLATILE COMPOUNDS SUMMARY SECTION D

Sample Holding Times

All samples from this set were analyzed within hold time criteria specified in SW846.

System Monitoring Compound Recovery

All system monitoring compounds met established laboratory generated as well as SW846 recommended control limit criteria for Volatile analysis.

Matrix Spike/Matrix Spike Duplicate Recovery

All Matrix Spike, Matrix Spike Duplicate and RPD recovery results met established laboratory generated as well as SW846 recommended control limit criteria for the Volatile scan.

Method Blank Summary

No selected volatile compounds were detected at or above the Contract Required Detection Limit (CRDL) in the Method Blanks corresponding to this sample set.

Initial Calibration

A minimum (5) point calibration was performed for each volatile surrogate and the targeted volatile compound mix. Each targeted analyte met SW846 Method 8260B RSD criteria.

Continuing Calibration

The Continuing Calibration Standards analyzed with this sample set all met laboratory generated and SW846 Method 8260B continuing calibration criteria.

Practical Quantitation Limit

The Practical Quantitation Limit for the selected volatile components met the Contract Required Detection Limits (CRDLs).

METALS SUMMARY SECTION E

Sample Holding Times

All samples from this set were digested and analyzed within hold time criteria specified in SW846.

The metals analysis QC summaries have all applicable QC limits specified on the forms. The SW846 QC criteria were met for this sample set .

INORGANICS SUMMARY SECTION F

The Total Solids inorganic parameters are submitted as a composite QA summary with all applicable QC limits specified on the forms. The BTU inorganic parameters are submitted as recorded on the run log. The TPH inorganic parameters are submitted as recorded on the run log. The pH inorganic parameters are submitted as recorded on the run log. The Flash Point inorganic parameters are submitted as recorded on the run log. All SW846 QC criteria were met for this sample set.

The data presented as part of this report meets the minimum quality standards in the referenced analytical methods. Any exceptions have been noted. DLZ Laboratories, Inc and its officers and employees, assume no responsibility and make no warranty, express or implied, for uses or interpretations made by any recipients, intended or unintended, of this report.



Michael L. Douglass, M.S.
Quality Assurance Officer
DLZ Laboratories, Inc.
Michigan Facility



ENVIRONMENTAL TESTING • COMPLIANCE ANALYSES
INDUSTRIAL HYGIENE

MS. JACKIE DOAN
ENVIRONMENTAL QUALITY MGMT.
1310 KEMPER MEADOW DRIVE
CINCINNATI, OH 45240

Page 1
Lab Number: DL20255-1
Report Date: 07/09/98

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE/TIME	RECEIVED	
SLUDGE #1 DRUM #24 AVERY STREET SITE	Solid Waste		29 JUN 98/13:10	30 JUN 98	
CONSTITUENT	RESULT	*RDL	UNITS	METHOD	ANALYZED BY
TCLP Arsenic	<0.50	0.50	mg/L	6020	07-06-98 PH
TCLP Barium	<10	10	mg/L	6020	07-06-98 PH
TCLP Cadmium	<0.10	0.10	mg/L	6020	07-06-98 PH
TCLP Chromium	<0.50	0.50	mg/L	6020	07-06-98 PH
TCLP Copper	<10	10	mg/L	6020	07-06-98 PH
TCLP Lead	6.0	0.50	mg/L	6020	07-06-98 PH
TCLP Mercury	<0.020	0.020	mg/L	7470	07-03-98 AR
TCLP Selenium	<0.10	0.10	mg/L	6020	07-06-98 PH
TCLP Silver	<0.50	0.50	mg/L	6020	07-06-98 PH
TCLP Zinc	<50	50	mg/L	6020	07-06-98 PH
BTU	5,200	0.01	BTU/lb	ASTM D240	07-01-98 BOW
Flash Point	>200	---	Degree F	1010	07-06-98 JK
Total Petroleum Hydrocarbons	170,000	100	mg/Kg	418.1M	07-07-98 COL
Total Solids	75		%	2540G	07-06-98 KB
pH	7.12		Units	9045	07-07-98 KS

* Reportable Detection Limit



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INDUSTRIAL HYGIENE

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ENVIRONMENTAL QUALITY MGMT.
1310 KEMPER MEADOW DRIVE
CINCINNATI, OH 45240

Page 2
Lab Number: DL20255-1
Report Date: 07/09/98
Analyzed : 07-02-98
Analyzed by: PB
Method : 8260

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE/TIME	RECEIVED
SLUDGE #1 DRUM #24 AVERY STREET SITE	Solid Waste		29 JUN 98/13:10	30 JUN 98
<hr/>				
ANALYTE			RESULT mg/L	*RDL mg/L
<hr/>				
TCLP VOLATILE ORGANIC COMPOUNDS				
Vinyl Chloride			<0.010	0.010
1,1-Dichloroethene			<0.010	0.010
Methyl Ethyl Ketone (2-Butanone)			<0.100	0.100
Chloroform			<0.010	0.010
Carbon tetrachloride			<0.010	0.010
1,2-Dichloroethane			<0.010	0.010
Benzene			<0.010	0.010
Trichloroethene			<0.010	0.010
Tetrachloroethene			<0.010	0.010
Chlorobenzene			<0.010	0.010
1,4-Dichlorobenzene			<0.010	0.010
SURROGATE:				
Dibromofluoromethane			---	---
Toluene-d8			97%	
4-Bromofluorobenzene			102%	
			104%	
<hr/>				

* Reportable Detection Limit



ENVIRONMENTAL TESTING • COMPLIANCE ANALYSES
INDUSTRIAL HYGIENE

MS. JACKIE DOAN
ENVIRONMENTAL QUALITY MGMT.
1310 KEMPER MEADOW DRIVE
CINCINNATI, OH 45240

Page 3
Lab Number: DL20255-1
Report Date: 07/09/98
Analyzed : 07-07-98
Analyzed by: SMH
Method : 8082

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE/TIME	RECEIVED
SLUDGE #1 DRUM #24 AVERY STREET SITE	Solid Waste		29 JUN 98/13:10	30 JUN 98
ANALYTE			RESULT ug/Kg	*RDL ug/Kg
PCB COMPOUNDS				
PCB-1016			<2,300	330
PCB-1221			<2,300	330
PCB-1232			<2,300	330
PCB-1242			<2,300	330
PCB-1248			<2,300	330
PCB-1254			<2,300	330
PCB-1260			<2,300	330
SURROGATE:			---	---
2,4,5,6-Tetrachloro-m-xylene			60%	
Decachlorobiphenyl			52%	

* Reportable Detection Limit



ENVIRONMENTAL TESTING • COMPLIANCE ANALYSES
INDUSTRIAL HYGIENE

MS. JACKIE DOAN
ENVIRONMENTAL QUALITY MGMT.
1310 KEMPER MEADOW DRIVE
CINCINNATI, OH 45240

Page 4
Lab Number: DL20255-1
Report Date: 07/09/98
Analyzed : 07-07-98
Analyzed by: SK
Method : 8270

SAMPLE DESCRIPTION	MATRIX	SAMPLED BY	SAMPLED DATE/TIME	RECEIVED
SLUDGE #1 DRUM #24 AVERY STREET SITE	Solid Waste		29 JUN 98/13:10	30 JUN 98
ANALYTE			RESULT mg/L	*RDL mg/L
TCLP NONVOLATILE ORGANICS				
Pyridine			<0.10	0.10
2-Methylphenol			<0.10	0.10
Hexachloroethane			<0.10	0.10
3/4-Methylphenol			0.39	0.10
Nitrobenzene			<0.10	0.10
Hexachlorobutadiene			<0.10	0.10
2,4,6-Trichlorophenol			<0.10	0.10
2,4,5-Trichlorophenol			<0.10	0.10
2,4-Dinitrotoluene			<0.10	0.10
Hexachlorobenzene			<0.10	0.10
Pentachlorophenol			<0.40	0.20
SURROGATE:				
2-Fluorophenol			37%	
Phenol-d6			25%	
Nitrobenzene-d5			57%	
2-Fluorobiphenyl			84%	
2,4,6-Tribromophenol			96%	
p-Terphenyl-d14			56%	

* Reportable Detection Limit

Detection limit was raised in sample DL20255-1 for PCB compounds due to matrix interferences.

Detection limit was raised in sample DL20255-1 for Pentachlorophenol compounds due to matrix interferences.

Extraction date is 07/02/98 for sample DL20255-1 for TCLP-NV compounds.

Extraction date is 07/01/98 for sample DL20255-1 for PCB compounds.

PCB and TPH analysis results were reported as dry weight values.

Carol Smith
Approved

1 - 56000

INTERNAL CHAIN-OR-CUSTODY LOG

DLZL FORM QC-1 NOV. 1996

Strong Arm Security Room (Guard Room Supervisor)

DLZ LABORATORIES TCLP EXTRACTION LOG

DLZ #	DATE	CLIENT	ANALYST	INITIAL AMOUNT	FLUID AMOUNT	FLUID #	pH	EXT. TYPE			ZHE #	TUMBLED DATE/TIME		
								V	SV	M		START	STOP	
20219-8	6.25.95	mea-Liu	LC	100g	5.0L	#1					6.25.95	6/23 3:00	6.26.95 / 4:00	
TCLP BK	—	—	—	—	—	—					—	—	—	
Y	6.29.98	—	—	—	2.0L	#1					6.29.98/1130P	6.30.98/5:30P	—	
20180-1		Enviro		100g	2.0L									
20248-1		owner-2		103.9g	5.27% SO ₂									
20255-1	7/1/98	owner-2	J/K	90g	1.8L	#1	/	/	/	/	7/1/98	7/1/98 9:00	—	
20255-1	7/1/98	owner-2	J/K	15g	300mL	#1	J/K	/	/	/	7/1/98 16:30	7/2/98 10:30	—	
20245-1	7/1.98	2000T	LC	100g	2.0L	#1					7/1.98 5:40			
20258-1		WWA		90g	1.8L	#2								
-2		—	—	—	—	—								
TCLP BK	—	—	—	—	—	—					—	—	—	
20276-1	7.6.98	Fm	LC	100g	2.0L	#1					7.6.98 1130P	7.7.98 5:00P	—	
TCLP BK	—	—	—	—	—	—					—	—	—	

20276-1 concrete block. Samp size reduced 7.6.98 LC

ENVIRONMENTAL PROTECTION AGENCY

Office of Enforcement

CHAIN OF CUSTODY RECORD

REGION 5
77 West Jackson Boulevard
Chicago, Illinois 60604

**SECTION B
PCB/PESTICIDE COMPOUNDS
QA/QC DOCUMENTATION**

Sample Hold Time Tables

PCB System Monitoring Compound Tables

PCB QA/QC Summary Report Form

Matrix Spike/Matrix Spike Duplicate Summary

Method Blank Results

Continuing Calibration Check

Laboratory Control Sample Results

PCB Initial Calibration Reports

**QA/QC SUPPORT DOCUMENTATION
PCB COMPOUNDS
SAMPLE HOLDING TIMES**

Sediment samples requiring pesticide or PCB analysis must be extracted within 14 days of collection and analyzed within 40 days of extraction. Aqueous samples requiring pesticide or PCB analysis must be extracted within 7 days of collection and analyzed within 40 days of extraction. The following table summarizes the dates of collection, extraction and analysis for PCBs relevant to this sample set.

PCB SURROGATE RECOVERY SUMMARY

Laboratory Name: DLZ Laboratories Inc.

CONTRACT: _____

1. DCB = Decachlorobiphenyl

2. TCMX = 2,4,5,6-Tetrachloro-m-xylene

Advisory QC Limits (22-138)SOIL: (10-104) AQUEOUS

Advisory QC Limits (39-136)SOIL: (17-121)AQUEOUS

QC/QA SUMMARY REPORT
PCB ANALYSIS

PARAMETERS	PCB-1016	PCB-1260			
GENERAL					
EPA Method (SW846)	8082	8082			
Waste Dilution Method (SW846)	3550B	3550B			
Cleanup Method (SW846)	NA	NA			
Practical Quantitation Limit (PQL)	330 µg/Kg	330 µg/Kg			
Date Sampled	5/12/98	5/12/98			
Date Extracted	5/26/98	5/26/98			
Date Sample Analyzed	5/29/98	5/29/98			
Analyst	SMH	SMH			
Method Blank Analysis Date	5/28/98	5/28/98			
LCS Analysis Date	5/28/98	5/28/98			
CALIBRATION INFORMATION					
Method Blank µg/Kg	<330	<330			
Cont Cal Chk %Diff	NA	NA			
UCL (Cont Cal Chk)	15 %	15 %			
ACCURACY AND PRECISION					
Matrix Spike Sample ID	SE17653-1	SE17653-1			
Sample Result µg/Kg	<330	<330			
Matrix Spike Amount	2280	2280			
Matrix Spike Result	2100	2360			
Matrix Spike Dup Result	1940	2180			
Relative % Difference (RPD)	7.92	7.93			
RPD Upper Limit	13.2 %	19.2 %			
Percent Recovery (MS) %	92	104			
Percent Recovery (MSD) %	85	96			
LCL-UCL (MS/MSD)	51.8-148 %	30-129 %			
(LCS) Recovery %	85	90			
LCL-UCL (LCS)	51.8-148 %	30-129 %			
SAMPLES ANALYZED IN THIS ANALYTICAL BATCH					
DL20255-1					
COMMENTS:					

PCB Compounds Initial Calibration Report

The following compounds were calibrated on June 23, 1998 on Instrument #8:

50/50 Mix Arochlor 1016 & 1260

Decachlorobiphenyl (DCB)

2,4,5,6-Tetrachloro-m-xylene (TCMX)

This calibration is applicable to the following DLZ Laboratories Detroit District Army Corp Samples

DL20255-1

as they pertain to PCB content and PCB content analysis surrogate recoveries

Turbochrom Method File : C:\TC4\SEQUENCE\PCB23JUN.MTH
Created by : CAL on : 6/24/98 08:31 AM
Edited by : SMH on : 7/8/98 01:11 PM
Description :

Number of Times Edited : 10
Number of Times Calibrated : 14

PCB Curve
Inj. #8

Global Information :

Date 6/23/98

Default Sample Volume : 1.000 ul
Quantitation Units : ng
Void Time : 0.000 min
Correct amounts during calibration : YES
Reject outliers during calibration : NO
An External Standard calibration will be used
Unknown peaks will be quantitated using a response factor of 1.000000e+06

Component Information :

TCMX

Component Type : Single Peak Component
Retention Time : 7.593 min Search Window: 0.50 s, 3.00 %

Reference Component:

Find peak closest to expected RT in window
Use Average Calibration Factor (Area / Amount)

User Values:

Label :
Value 1: 0.500000
Value 2: 0.000000
Value 3: 0.000000
Value 4: 0.000000
Value 5: 0.000000

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replic
1	0.0500	272840.43	83585.36	-----	-----	1
2	0.1000	534826.45	165777.04	-----	-----	1
3	0.2000	1016232.88	310578.06	-----	-----	1
4	0.5000	2329182.56	725696.37	-----	-----	1
5	1.0000	3907985.23	1.02e+06	-----	-----	1

Average Calibration Factor = 4.890518e+06 (%RSD = 12.87)

PEAK-1

Component Type : Single Peak Component
Retention Time : 8.899 min Search Window: 0.50 s, 0.50 %

Reference Component:

Find largest peak in window
Use Average Calibration Factor (Area / Amount)

User Values:

Label :
Value 1: 0.000000
Value 2: 0.000000

1	0.0500	70846.73	15367.11	-----	-----	-----	1
2	0.1000	142956.79	31140.12	-----	-----	-----	1
3	0.2000	278392.02	60312.88	-----	-----	-----	1
4	0.5000	640225.23	142286.82	-----	-----	-----	1
5	1.0000	1189966.00	270300.96	-----	-----	-----	1

Average Calibration Factor = 1.341776e+06 (%RSD = 7.70)

PEAK 3

Component Type : Single Peak Component

Retention Time : 10.599 min Search Window: 0.50 s, 0.50 %

Reference Component:

Find largest peak in window

Use Average Calibration Factor (Area / Amount)

User Values:

Label :

Value 1: 0.000000

Value 2: 0.000000

Value 3: 0.000000

Value 4: 0.000000

Value 5: 0.000000

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replic
1	0.0500	28425.30	5441.09	-----	-----	1
2	0.1000	56989.86	11057.55	-----	-----	1
3	0.2000	108988.09	21639.08	-----	-----	1
4	0.5000	250597.23	51356.45	-----	-----	1
5	1.0000	463240.62	98042.10	-----	-----	1

Average Calibration Factor = 529555.993959 (%RSD = 8.75)

PEAK 4

Component Type : Single Peak Component

Retention Time : 10.887 min Search Window: 0.50 s, 0.50 %

Reference Component:

Find peak closest to expected RT in window

Use Average Calibration Factor (Area / Amount)

User Values:

Label :

Value 1: 0.000000

Value 2: 0.000000

Value 3: 0.000000

Value 4: 0.000000

Value 5: 0.000000

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replic
1	0.0500	10517.55	2232.65	-----	-----	1
2	0.1000	21560.98	4608.56	-----	-----	1
3	0.2000	42126.12	9033.92	-----	-----	1
4	0.5000	102222.42	22138.63	-----	-----	1
5	1.0000	194890.83	42639.81	-----	-----	1

Average Calibration Factor = 207185.416364 (%RSD = 3.83)

PEAK 5

Component Type : Single Peak Component

Retention Time : 11.838 min Search Window: 0.50 s, 0.50 %

Reference Component:

Find largest peak in window

Use Average Calibration Factor (Area / Amount)

User Values:

Label :
Value 1: 0.000000
Value 2: 0.000000
Value 3: 0.000000
Value 4: 0.000000
Value 5: 0.000000

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replic
1	0.0500	9055.70	2418.75	-----	-----	1
2	0.1000	19457.75	4919.59	-----	-----	1
3	0.2000	33957.07	9208.92	-----	-----	1
4	0.5000	79487.45	21517.57	-----	-----	1
5	1.0000	147465.78	40397.06	-----	-----	1

Average Calibration Factor = 170383.488871 (%RSD = 10.81)

PEAK 6

Component Type : Single Peak Component

Retention Time : 14.569 min Search Window: 0.50 s, 0.50 %

Reference Component:

Find largest peak in window

Use Average Calibration Factor (Area / Amount)

User Values:

Label :
Value 1: 0.000000
Value 2: 0.000000
Value 3: 0.000000
Value 4: 0.000000
Value 5: 0.000000

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replic
1	0.0500	23145.92	5095.55	-----	-----	1
2	0.1000	44056.68	9833.37	-----	-----	1
3	0.2000	82947.37	18468.91	-----	-----	1
4	0.5000	186654.77	41603.50	-----	-----	1
5	1.0000	336601.82	75054.34	-----	-----	1

Average Calibration Factor = 405626.661121 (%RSD = 12.57)

PEAK 7

Component Type : Single Peak Component

Retention Time : 14.907 min Search Window: 0.50 s, 0.50 %

Reference Component:

Find largest peak in window

Use Average Calibration Factor (Area / Amount)

User Values:

Label :
Value 1: 0.000000
Value 2: 0.000000
Value 3: 0.000000
Value 4: 0.000000
Value 5: 0.000000

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replic
1	0.0500	30455.94	6450.21	-----	-----	1
2	0.1000	59264.14	12446.73	-----	-----	1
3	0.2000	113839.77	23616.66	-----	-----	1
4	0.5000	261564.89	53747.20	-----	-----	1
5	1.0000	476607.98	97028.43	-----	-----	1

Average Calibration Factor = 554139.365469 (%RSD = 9.76)

PEAK 8

Component Type : Single Peak Component

Retention Time : 15.958 min Search Window: 0.50 s, 0.50 %

Reference Component:

Find largest peak in window

Use Average Calibration Factor (Area / Amount)

User Values:

Label :

Value 1: 0.000000

Value 2: 0.000000

Value 3: 0.000000

Value 4: 0.000000

Value 5: 0.000000

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replic
1	0.0500	18066.31	4267.19	-----	-----	1
2	0.1000	35916.18	8457.90	-----	-----	1
3	0.2000	77676.82	17458.50	-----	-----	1
4	0.5000	185427.40	41570.78	-----	-----	1
5	1.0000	346034.80	76864.00	-----	-----	1

Average Calibration Factor = 365152.339124 (%RSD = 4.30)

PEAK 9

Component Type : Single Peak Component

Retention Time : 17.039 min Search Window: 0.50 s, 0.50 %

Reference Component:

Find largest peak in window

Use Average Calibration Factor (Area / Amount)

User Values:

Label :

Value 1: 0.000000

Value 2: 0.000000

Value 3: 0.000000

Value 4: 0.000000

Value 5: 0.000000

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replic
1	0.0500	19649.65	4056.71	-----	-----	1
2	0.1000	37105.42	8006.60	-----	-----	1
3	0.2000	73710.57	15922.93	-----	-----	1
4	0.5000	175494.67	38304.60	-----	-----	1
5	1.0000	326738.32	71772.41	-----	-----	1

Average Calibration Factor = 362065.540162 (%RSD = 6.84)

Component Type : Named Group

Group Members:

PEAK 6
PEAK 7
PEAK 8
PEAK 9
PEAK 10

Use Average Calibration Factor (Area / Amount)

User Values:

Label :
Value 1: 0.000000
Value 2: 0.000000
Value 3: 0.000000
Value 4: 0.000000
Value 5: 0.000000

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replic
1	0.0500	131305.28	28842.58	-----	-----	1
2	0.1000	257217.48	57014.15	-----	-----	1
3	0.2000	525524.68	113524.39	-----	-----	1
4	0.5000	1251816.31	269338.54	-----	-----	1
5	1.0000	2324097.42	499096.09	-----	-----	1

Average Calibration Factor = 2.530727e+06 (%RSD = 4.98)

PEAK 10

Component Type : Single Peak Component

Retention Time : 17.552 min Search Window: 0.50 s, 0.50 %

Reference Component:

Find largest peak in window

Use Average Calibration Factor (Area / Amount)

User Values:

Label :
Value 1: 0.000000
Value 2: 0.000000
Value 3: 0.000000
Value 4: 0.000000
Value 5: 0.000000

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replic
1	0.0500	39987.46	8972.91	-----	-----	1
2	0.1000	80875.07	18269.55	-----	-----	1
3	0.2000	177350.15	38057.39	-----	-----	1
4	0.5000	442674.58	94112.46	-----	-----	1
5	1.0000	838114.50	178376.90	-----	-----	1

Average Calibration Factor = 843742.878721 (%RSD = 4.88)

DCB

Component Type : Single Peak Component

Retention Time : 22.346 min Search Window: 0.50 s, 3.00 %

Reference Component:

Find peak closest to expected RT in window

Use Average Calibration Factor (Area / Amount)

User Values:

Label :
Value 1: 0.500000
Value 2: 0.000000
Value 3: 0.000000
Value 4: 0.000000
Value 5: 0.000000

Calibration Levels:

Level Name	Amount	Area	Height	ISTD Resp.	ISTD Amt.	# Replic
1	0.0500	469349.47	83502.53	-----	-----	1
2	0.1000	835745.36	154883.20	-----	-----	1
3	0.2000	1466315.27	283975.72	-----	-----	1
4	0.5000	3407745.84	647582.93	-----	-----	1
5	1.0000	6042948.61	984968.57	-----	-----	1

Average Calibration Factor = 7.586892e+06 (%RSD = 17.28)

Software Version: 4.1<2F12>

Sample Name : 1016/1260 0.5

Time : 7/9/98 03:54 PM

Sample Number: 2

Study : PCB

Operator : SMH

Instrument : INSTRUMENT_#8

Channel : A

A/D mV Range : 1000

AutoSampler : HP7673A

Rack/Vial : 0/2

Interface Serial # : NONE Data Acquisition Time: 7/7/98 10:13 AM

Delay Time : 0.00 min.

Ind Time : 26.99 min.

Sampling Rate : 1.2500 pts/sec

Raw Data File : C:\TC4\DATA0\098C002.RAW

Result File : C:\TC4\DATA0\098C002.RST

Inst Method : C:\TC4\SEQUENCE\PCB23JUN from C:\TC4\DATA0\098C002.RST

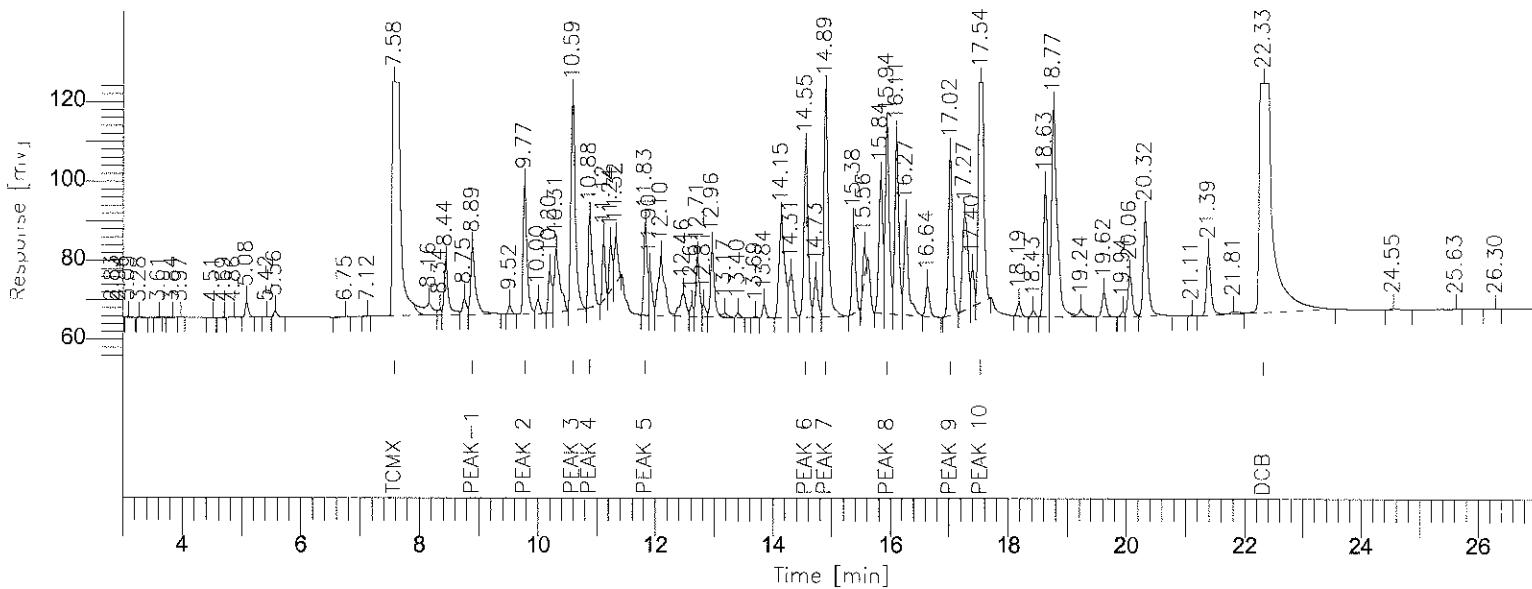
Proc Method : C:\TC4\SEQUENCE\PCB23JUN from C:\TC4\DATA0\098C002.RST

Calib Method : C:\TC4\SEQUENCE\PCB23JUN from C:\TC4\DATA0\098C002.RST

Sequence File : C:\TC4\SEQUENCE\07JUL8.SEQ

Sample Volume : 1.0000 ul Area Reject : 0.000000

Sample Amount : 1.0000 Dilution Factor : 1.00



PCB REPORT

Peak #	Time [min]	Component Name	Area [uV*sec]	Raw Amount	Adjusted Amount	SURROGATE RECOVERY %	1016/1260 RECOVERY %
1	0.152		11709.02	0.0117	0.0117	2	2
2	1.295		1900597.83	1.9006	1.9006	380	380

Peak #	Time [min]	Component Name	Area [uV*sec]	Raw Amount	Adjusted Amount	SURROGATE RECOVERY %	1016/1260 RECOVERY %
3	1.753		139701.25	0.1397	0.1397	28	28
4	1.927		204653.22	0.2047	0.2047	41	41
5	2.115		3496.82	0.0035	0.0035	1	1
6	2.169		3114.35	0.0031	0.0031	1	1
7	2.250		1037.22	0.0010	0.0010	0	0
8	2.437		346.63	0.0003	0.0003	###	###
9	2.531		302.89	0.0003	0.0003	###	###
10	2.825		1390.30	0.0014	0.0014	0	0
11	2.939		509.81	0.0005	0.0005	0	0
12	3.089		1319.26	0.0013	0.0013	0	0
13	3.279		685.87	0.0007	0.0007	0	0
14	3.610		311.43	0.0003	0.0003	###	###
15	3.836		509.67	0.0005	0.0005	0	0
16	3.972		310.24	0.0003	0.0003	###	###
17	4.507		662.53	0.0007	0.0007	0	0
18	4.689		900.91	0.0009	0.0009	0	0
19	4.857		1276.70	0.0013	0.0013	0	0
20	5.079		14754.77	0.0148	0.0148	3	3
21	5.424		648.95	0.0006	0.0006	0	0
22	5.564		6007.62	0.0060	0.0060	1	1
23	6.751		1450.05	0.0015	0.0015	0	0
24	7.123		284.14	0.0003	0.0003	###	###
25	7.583	TCMX	2650844.58	0.5420	0.5420	108	108
26	8.160		39328.50	0.0393	0.0393	8	8
27	8.344		6235.02	0.0062	0.0062	1	1
28	8.439		66823.20	0.0668	0.0668	13	13
29	8.754		19128.65	0.0191	0.0191	4	4
31	9.517		8806.14	0.0088	0.0088	2	2
33	9.997		16595.60	0.0166	0.0166	3	3
34	10.199		48621.58	0.0486	0.0486	10	10
35	10.307		103632.05	0.1036	0.1036	21	21
	10.590	1016	740790.09	0.5521	0.5521	110	110
38	11.118		52656.17	0.0527	0.0527	11	11
39	11.236		46391.25	0.0464	0.0464	9	9
40	11.324		47673.16	0.0477	0.0477	10	10
42	11.904		44994.02	0.0450	0.0450	9	9
43	12.096		115697.41	0.1157	0.1157	23	23
44	12.464		43949.21	0.0439	0.0439	9	9
45	12.609		12376.72	0.0124	0.0124	2	2
46	12.711		65185.63	0.0652	0.0652	13	13
47	12.811		11780.43	0.0118	0.0118	2	2
48	12.958		81808.04	0.0818	0.0818	16	16
49	13.174		7482.21	0.0075	0.0075	1	1
50	13.398		4729.95	0.0047	0.0047	1	1
51	13.690		1807.20	0.0018	0.0018	0	0
52	13.842		14828.28	0.0148	0.0148	3	3
53	14.145		173030.51	0.1730	0.1730	35	35
54	14.309		61735.51	0.0617	0.0617	12	12
56	14.725		48467.17	0.0485	0.0485	10	10
58	15.376		98965.55	0.0990	0.0990	20	20
59	15.556		31487.54	0.0315	0.0315	6	6
60	15.836		176254.07	0.1763	0.1763	35	35
62	16.109		214995.12	0.2150	0.2150	43	43
63	16.267		138798.43	0.1388	0.1388	28	28
64	16.638		37790.21	0.0378	0.0378	8	8
66	17.268		159740.67	0.1597	0.1597	32	32
67	17.401		37829.21	0.0378	0.0378	8	8
	17.536	1260	1398681.61	0.5527	0.5527	111	111
69	18.185		14514.87	0.0145	0.0145	3	3
70	18.429		7051.21	0.0071	0.0071	1	1
71	18.629		159408.92	0.1594	0.1594	32	32
72	18.768		358512.05	0.3585	0.3585	72	72
73	19.236		16532.18	0.0165	0.0165	3	3
74	19.623		32024.35	0.0320	0.0320	6	6
75	19.942		5332.57	0.0053	0.0053	1	1
76	20.060		55910.26	0.0559	0.0559	11	11
77	20.320		143338.85	0.1433	0.1433	29	29
78	21.108		344.34	0.0003	0.0003	###	###
79	21.392		84337.13	0.0843	0.0843	17	17
80	21.810		8411.03	0.0084	0.0084	2	2
81	22.325	DCB	3852174.89	0.5077	0.5077	102	102
82	24.548		3681.93	0.0037	0.0037	1	1
83	25.627		1099.39	0.0011	0.0011	0	0
84	26.304		458.61	0.0005	0.0005	###	###

13869054.76 7.3811 7.3811 ###

Group Report For : 1016

Peak #	Time [min]	Component Name	Area [uV*sec]	Raw Amount	Adjusted Amount	SURROGATE RECOVERY %	1016/1260 RECOVERY %
30	8.891	PEAK-1	95951.27	0.6577	0.6577	132	132
32	9.771	PEAK 2	149674.96	0.5183	0.5183	104	104
36	10.590	PEAK 3	282641.08	0.5337	0.5337	107	107
37	10.879	PEAK 4	116228.37	0.5610	0.5610	112	112
41	11.828	PEAK 5	96294.42	0.5652	0.5652	113	113
			740790.09	2.8359	2.8359	567	

Group Report For : 1260

Peak #	Time [min]	Component Name	Area [uV*sec]	Raw Amount	Adjusted Amount	SURROGATE RECOVERY %	1016/1260 RECOVERY %
55	14.554	PEAK 6	208603.18	0.5143	0.5143	103	103
57	14.892	PEAK 7	293658.79	0.5299	0.5299	106	106
61	15.944	PEAK 8	230386.05	0.6309	0.6309	126	126
65	17.023	PEAK 9	198523.11	0.5483	0.5483	110	110
68	17.536	PEAK 10	467510.47	0.5541	0.5541	111	111
			1398681.61	2.7775	2.7775	556	

Missing Component Report

Component Expected Retention (Calibration File)

All components were found

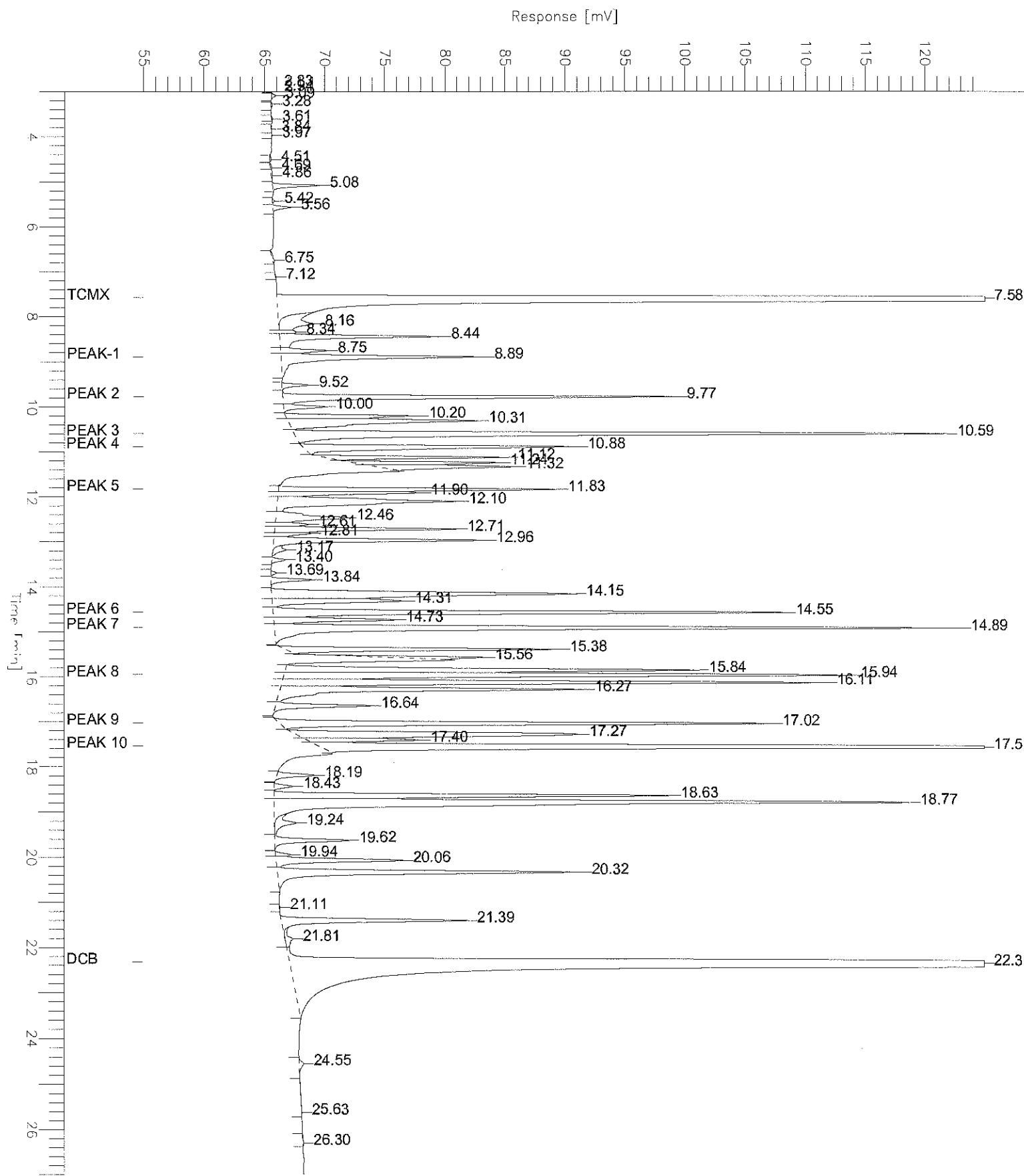
Chromatogram

Sample Name : 1016/1260 0.5
fileName : C:\TC4\DATA0\098C002.RAW
ethod :
Start Time : 3.00 min
Scale Factor: 0.0

End Time : 27.00 min
Plot Offset: 55 mV

Sample #: 2
Date : 7/9/98 03:54 PM
Time of Injection: 7/7/98 10:13 AM
Low Point : 55.00 mV
High Point : 125.00 mV
Plot Scale: 70.0 mV

Page 1 of 1



**SECTION C
SEMI-VOLATILE COMPOUNDS
QA/QC DOCUMENTATION**

Sample Hold Time Tables

Semi-Volatile System Monitoring Compound Tables

Instrument Performance Check Summaries
12-Hour Internal Standard Recovery Summaries

Matrix Spike/Matrix Spike Duplicate Summary

Method Blank Results

Semi-Volatile Compounds Initial Calibration Reports

Semi-Volatile Compounds Continuing Calibration Reports

QA/QC SUPPORT DOCUMENTATION
TCLP Extracted Semi Volatile Organic Compounds
SAMPLE HOLDING TIMES

In accordance with USEPA Methods 1311 and 8270, the sample holding time for all TCLP Extracted Polynuclear Aromatic Compound is as follows: 14 days from field collected to TCLP extraction; and 7 days from TCLP extraction to preparative extraction.

The following table summarizes the dates of collection, extraction and analysis of this sample set.

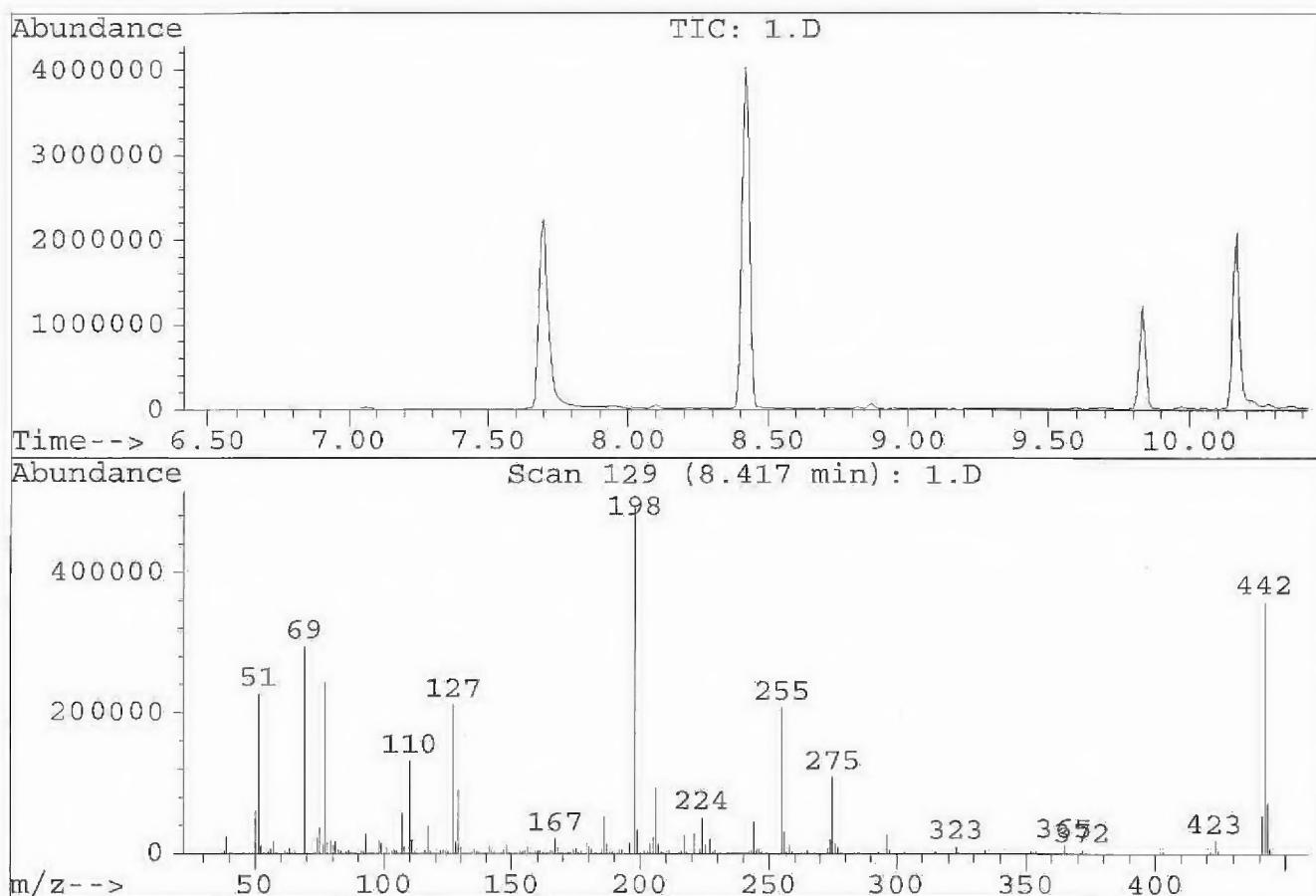
Lab No.	Client ID	Matrix	Date Collected	Date of TCLP Extraction	Date of Preparative Extraction	Date Analyzed	Number Out
DL20255-1	Drum #24	waste	06/29/98	07/01/98	07/02/98	07/07/98	0

DFTPP

Data File : D:\DATA\070798\1.D
 Acq On : 7 Jul 98 9:27 am
 Sample : DFTPP 07-07-98
 Misc :

Vial: 1
 Operator: SKUMAR
 Inst : 5971-hp5
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\NEW8270D.M
 Title : SW-846; Method 8270 Semivolatile Organics



Peak Apex is scan: 129

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
51	198	30	60	46.1	225984	PASS
68	69	0	2	0.0	0	PASS
69	198	0	100	59.9	293568	PASS
70	69	0	2	0.4	1151	PASS
127	198	40	60	42.9	210496	PASS
197	198	0	1	0.0	0	PASS
198	198	100	100	100.0	490112	PASS
199	198	5	9	6.6	32440	PASS
275	198	10	30	22.0	107712	PASS
365	198	1	100	2.4	11534	PASS
441	443	0	100	74.9	53480	PASS
442	198	40	100	73.1	358464	PASS
443	442	17	23	19.9	71424	PASS

QC/QA SUMMARY REPORT

TCLP SEMIVOLATILE COMPOUNDS Compounds By GCMS Method 8270C

Sample Preparation Method: 3510C
 Sample Extraction Date: 6/2/98
 Matrix: Aqueous

Units	Practical Quant. Limit (PQL)	Blank Result	Check Standard Amount	Check Standard percent Rec	Blank Spike Result	Blank Spike Amount	Blank Spike percent Rec	Sample Result	Matrix Spike Amount	Matrix Spike Result	Matrix Spike Dup Result	Matrix Spike Rec	Rel % diff (RPD)
Semivolatile Compounds													
o-Cresol	0.05	<0.05	NA	NA	0.50	0.214	43	<0.05	0.50	0.171	0.248	34*	50
p,m-Cresol	0.10	<0.10	NA	NA	1.0	0.377	38	<0.10	1.0	0.310	0.437	31*	44
2,4-Dinitrotoluene	0.05	<0.05	NA	NA	0.50	0.318	64	<0.05	0.50	0.253	0.348	51*	70
Hexachlorobenzene	0.05	<0.05	NA	NA	0.50	0.354	71	<0.05	0.50	0.266	0.349	53*	70
Hexachlorobutadiene	0.05	<0.05	NA	NA	0.50	0.233	47	<0.05	0.50	0.161	0.252	32*	50
Hexachloroethane	0.05	<0.05	NA	NA	0.50	0.215	43	<0.05	0.50	0.148	0.238	30*	48
Nitrobenzene	0.05	<0.05	NA	NA	0.50	0.314	63	<0.05	0.50	0.238	0.334	48*	67
Pentachlorophenol	0.20	<0.20	NA	NA	0.50	0.342	68	<0.20	0.50	0.295	0.374	59	75
Pyridine	0.05	<0.05	NA	NA	0.50	0.075	15	<0.05	0.50	0.056	0.085	11	17
2,4,5-Trichlorophenol	0.05	<0.05	NA	NA	0.50	0.320	64	<0.05	0.50	0.265	0.362	53	72
2,4,6-Trichlorophenol	0.05	<0.05	NA	NA	0.50	0.312	62	<0.05	0.50	0.248	0.347	50*	69

Samples included in this analytical batch:
DL20255-1

Comments:

*Low Recoveries for MS and RPDs are outside Quality Control Limits

Spiked Sample ID: DL20057-1
 Analyst Initials: SK

Semi-Volatile Initial Calibration Report

The selected semi-volatile compounds were calibrated on May 18, 1998 on the 5971 instrument

This calibration is applicable to the following Samples:

DL20255-1

Response Factor Report 5971-hp5

Method : C:\HPCHEM\1\METHODS\NEW8270D.M
 Title : SW-846; Method 8270 Semivolatile Organics
Last Update : Tue Jul 07 10:32:20 1998 *SM* 5/18/98
Response via : Continuing Calibration

SM Initial

Calibration Files

100	=5.D	80	=6.D	50	=7.D
30	=8.D	20	=9.D	5	=13.D

	Compound	100	80	50	30	20	5	Avg	%RSD
1) I	1,4-Dichlorobenzene-d	-----	ISTD-----						
2)	Pyridine	1.002	1.047	1.016	1.137	1.194	1.096	1.082	6.88
3) T	N-Nitrosodimethylam	0.968	1.007	1.008	1.137	1.213	1.158	1.082	9.25
4) S	2-Fluorophenol	1.008	0.975	0.927	0.965	1.093	1.173	1.023	8.98
5)	Aniline	1.942	2.000	2.018	2.144	2.303	2.204	2.102	6.58
6) T	bis(2-Chloroethyl)e	1.365	1.379	1.366	1.597	1.673	1.682	1.510	10.38
7) S	Phenol-d5	1.267	1.246	1.162	1.197	1.361	1.424	1.276	7.77
8) M C	Phenol	1.470	1.510	1.478	1.686	1.761	1.802	1.618	9.26
9) M	2-Chlorophenol	1.193	1.227	1.198	1.331	1.401	1.394	1.291	7.50
10) T	1,3-Dichlorobenzene	1.268	1.322	1.304	1.479	1.556	1.564	1.415	9.40
11) M C	1,4-Dichlorobenzene	1.255	1.287	1.308	1.466	1.549	1.585	1.408	10.18
12) T	1,2-Dichlorobenzene	1.205	1.253	1.235	1.398	1.483	1.496	1.345	9.68
13) T	Benzyl alcohol	0.711	0.743	0.706	0.773	0.734	0.541	0.701	11.73
14) T	bis(2-chloroisoprop	1.597	1.670	1.684	1.923	2.066	2.057	1.833	11.38
15) T	2-Methylphenol	1.023	1.081	1.063	1.200	1.272	1.212	1.142	8.69
16) T	Hexachloroethane	0.482	0.507	0.494	0.549	0.592	0.573	0.533	8.48
17) M P	N-Nitroso-di-n-prop	0.910	0.941	0.905	1.021	1.111	1.045	0.989	8.41
18) T	4-Methylphenol	1.050	1.091	1.119	1.249	1.283	1.154	1.158	7.86
19) I	Naphthalene-d8	-----	ISTD-----						
20) S	Nitrobenzene-d5	0.422	0.429	0.386	0.417	0.456	0.458	0.428	6.27
21) T	Nitrobenzene	0.391	0.399	0.406	0.438	0.478	0.492	0.434	9.89
22) T	Isophorone	0.823	0.862	0.833	0.933	1.003	1.008	0.911	9.14
23) C	2-Nitrophenol	0.231	0.241	0.231	0.244	0.264	0.238	0.242	5.06
24) T	2,4-Dimethylphenol	0.322	0.330	0.314	0.341	0.345	0.323	0.329	3.61
25) T	bis(2-Chloroethoxy)	0.460	0.482	0.479	0.545	0.578	0.597	0.524	10.95
26) C	2,4-Dichlorophenol	0.313	0.327	0.316	0.342	0.359	0.311	0.328	5.77
27) M	1,2,4-Trichlorobenz	0.299	0.313	0.309	0.340	0.359	0.366	0.331	8.48
28) T	Naphthalene	0.849	0.916	0.928	1.060	1.139	1.167	1.010	12.93
29)	2,6-Dichlorophenol	0.265	0.279	0.283	0.320	0.343	0.345	0.306	11.35
30) T	Benzoic acid	0.160	0.152	0.127	0.112	0.119		0.134	15.61
31) T	4-Chloroaniline	0.327	0.363	0.363	0.372	0.423	0.417	0.377	9.63
32) C	Hexachlorobutadiene	0.140	0.145	0.145	0.158	0.168	0.175	0.155	9.32
33) M C	4-Chloro-3-methylph	0.264	0.272	0.259	0.275	0.288	0.231	0.265	7.32
34) T	2-Methylnaphthalene	0.561	0.591	0.601	0.682	0.727	0.714	0.646	10.89
35) I	Acenaphthene-d10	-----	ISTD-----						
36) P	Hexachlorocyclopent	0.204	0.190	0.167	0.145	0.129		0.167	18.35
37) C	2,4,6-Trichlorophen	0.310	0.309	0.305	0.320	0.334	0.297	0.313	4.14
38) T	2,4,5-Trichlorophen	0.322	0.305	0.307	0.303	0.310	0.231	0.296	11.00
39) S	2-Fluorobiphenyl	1.056	1.043	0.970	1.044	1.118	1.146	1.063	5.85
40) T	2-Chloronaphthalene	0.962	0.978	1.012	1.095	1.167	1.143	1.059	8.27
41) T	2-Nitroaniline	0.303	0.305	0.304	0.335	0.343	0.275	0.311	7.93

(#) = Out of Range

NEW8270D.M

Tue Jul 07 11:53:32 1998

MSD

Page 1

Response Factor Report 5971-hp5

Method : C:\HPCHEM\1\METHODS\NEW8270D.M
 Title : SW-846; Method 8270 Semivolatile Organics
 Last Update : Tue Jul 07 10:32:20 1998
 Response via : Continuing Calibration

Calibration Files

100	=5.D	80	=6.D	50	=7.D
30	=8.D	20	=9.D	5	=13.D

		Compound	100	80	50	30	20	5	Avg	%RSD
42)	T	Acenaphthylene	1.465	1.521	1.614	1.781	1.890	1.851	1.687	10.57
43)	T	Dimethylphthalate	1.130	1.161	1.151	1.261	1.333	1.319	1.226	7.33
44)	T	2,6-Dinitrotoluene	0.284	0.291	0.286	0.307	0.315	0.254	0.290	7.34
45)	M C	Acenaphthene	0.884	0.919	0.960	1.063	1.129	1.115	1.012	10.33
46)	T	3-Nitroaniline	0.278	0.278	0.256	0.247	0.294	0.235	0.265	8.38
47)	P	2,4-Dinitrophenol	0.121	0.115	0.100	0.092	0.082		0.102	15.65
48)	T	Dibenzofuran	1.275	1.302	1.318	1.428	1.501	1.442	1.378	6.64
49)	M P	4-Nitrophenol	0.060	0.058	0.054	0.051	0.053		0.055	6.84
50)	M	2,4-Dinitrotoluene	0.341	0.352	0.348	0.366	0.369	0.299	0.346	7.37
51)	T	2,3,4,6-Tetrachloro	0.201	0.203	0.191	0.201	0.195	0.151	0.190	10.45
52)	T	Fluorene	0.967	1.009	1.023	1.118	1.206	1.158	1.080	8.74
53)	T	4-Chlorophenyl-phen	0.408	0.430	0.428	0.461	0.499	0.477	0.450	7.62
54)	T	Diethylphthalate	1.040	1.077	1.089	1.209	1.254	1.255	1.154	8.37
55)	T	4-Nitroaniline	0.208	0.207	0.194	0.185	0.209	0.148	0.192	12.15
56)	I	Phenanthrene-d10					ISTD			
57)	T	4,6-Dinitro-2-methy	0.138	0.138	0.135	0.136	0.129		0.135	2.51
58)	C	n-Nitrosodiphenylam	0.476	0.486	0.477	0.521	0.548	0.539	0.508	6.30
59)		Azobenzene	0.917	0.943	0.949	1.035	1.083	1.090	1.003	7.58
60)	S	2,4,6-Tribromopheno	0.110	0.113	0.106	0.107	0.117	0.121	0.112	5.18
61)	T	4-Bromophenyl-pheny	0.208	0.214	0.207	0.217	0.227	0.218	0.215	3.54
62)	T	Hexachlorobenzene	0.244	0.248	0.242	0.259	0.275	0.274	0.257	5.69
63)	M C	Pentachlorophenol	0.097	0.098	0.088	0.090	0.080		0.091	8.31
64)	T	Phenanthrene	0.937	0.985	0.987	1.091	1.141	1.154	1.049	8.71
65)	T	Anthracene	0.919	0.966	0.991	1.086	1.116	1.108	1.031	8.04
66)		Carbazole	0.710	0.724	0.777	0.876	0.902	0.862	0.809	10.17
67)	T	Di-n-butylphthalate	1.171	1.240	1.307	1.448	1.528	1.511	1.368	10.92
68)	C	Fluoranthene	0.649	0.688	0.727	0.821	0.851	0.827	0.761	11.03
69)	I	Chrysene-d12					ISTD			
70)	T	Benzidine	0.196	0.130	0.175	0.179		0.231	0.182	20.06
71)	M	Pyrene	2.338	2.376	1.990	2.102	2.304	2.451	2.260	7.81
72)	S	Terphenyl-d14	1.381	1.352	1.038	1.107	1.240	1.352	1.245	11.55
73)	T	Butylbenzylphthalat	1.085	1.118	1.020	1.103	1.176	1.145	1.108	4.85
74)	T	3,3'-Dichlorobenzid	0.178	0.161	0.172	0.218		0.228	0.191	15.51
75)	T	Benzo[a]anthracene	1.168	1.183	1.093	1.172	1.254	1.249	1.186	5.03
76)	T	Chrysene	1.123	1.135	1.064	1.145	1.218	1.166	1.142	4.43
77)	T	bis(2-Ethylhexyl)ph	1.426	1.481	1.382	1.489	1.575	1.426	1.463	4.62
78)	I	Perylene-d12					ISTD			
79)	C	Di-n-octylphthalate	2.740	2.891	3.191	2.897	2.997	2.009	2.788	14.68
80)	T	Benzo[b]fluoranthen	1.163	1.237	1.346	1.142	1.158	1.082	1.188	7.72
81)	T	Benzo[k]fluoranthen	1.139	1.152	1.231	1.221	1.288	1.078	1.185	6.38
82)	C	Benzo[a]pyrene	0.974	0.989	1.080	0.966	1.011	0.901	0.987	5.94

(#= Out of Range

NEW8270D.M

Tue Jul 07 11:53:39 1998

MSD

Page 2

Response Factor Report 5971-hp5

Method : C:\HPCHEM\1\METHODS\NEW8270D.M
Title : SW-846; Method 8270 Semivolatile Organics
Last Update : Tue Jul 07 10:32:20 1998
Response via : Continuing Calibration

Calibration Files

100	=5.D	80	=6.D	50	=7.D
30	=8.D	20	=9.D	5	=13.D

	Compound	100	80	50	30	20	5	Avg	%RSD
83)	T Indeno[1,2,3-cd]pyr	0.853	0.830	0.888	0.780	0.753	0.718	0.804	8.01
84)	T Dibenz[a,h]anthrace	0.696	0.678	0.712	0.620	0.610	0.519	0.639	11.25
85)	T Benzo[g,h,i]perylene	0.680	0.659	0.721	0.622	0.618	0.555	0.643	8.96

Evaluate Continuing Calibration Report

Data File : D:\DATA\070798\2.D
 Acq On : 7 Jul 98 9:50 am
 Sample : SSTD050 07-07-98
 Misc : E0630

Vial: 2
 Operator: SKUMAR
 Inst : 5971-hp5
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\NEW8270D.M
 Title : SW-846; Method 8270 Semivolatile Organics
 Last Update : Mon Jul 06 12:55:04 1998
 Response via : Single Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	130	0.00
2	Pyridine	1.082	0.959	11.4	122	-0.02
3 T	N-Nitrosodimethylamine	1.082	0.942	12.9	121	-0.01
4 S	2-Fluorophenol	1.023	0.918	10.3	128	0.00
5	Aniline	2.102	1.800	14.4	116	-0.01
6 T	bis(2-Chloroethyl)ether	1.510	1.367	9.5	130	0.00
7 S	Phenol-d5	1.276	1.122	12.1	125	0.00
8 M C	Phenol	1.618	1.521	6.0	134	0.00
9 M	2-Chlorophenol	1.291	1.250	3.1	135	-0.01
10 T	1,3-Dichlorobenzene	1.415	1.372	3.1	137	-0.01
11 M C	1,4-Dichlorobenzene	1.408	1.346	4.4	134	0.00
12 T	1,2-Dichlorobenzene	1.345	1.304	3.1	137	-0.01
13 T	Benzyl alcohol	0.701	0.737	-5.1	135	0.00
14 T	bis(2-chloroisopropyl)ether	1.833	1.548	15.5	119	-0.01
15 T	2-Methylphenol	1.142	1.061	7.1	129	0.00
16 T	Hexachloroethane	0.533	0.515	3.4	135	-0.01
17 M P	N-Nitroso-di-n-propylamine	0.989	0.927	6.3	133	0.00
18 T	4-Methylphenol	1.158	1.053	9.1	122	-0.01
19 I	Naphthalene-d8	1.000	1.000	0.0	127	-0.01
20 S	Nitrobenzene-d5	0.428	0.410	4.1	135	-0.01
21 T	Nitrobenzene	0.434	0.404	6.9	127	-0.01
22 T	Isophorone	0.911	0.894	1.8	137	-0.01
23 C	2-Nitrophenol	0.242	0.248	-2.5	137	-0.01
24 T	2,4-Dimethylphenol	0.329	0.340	-3.3	138	-0.01
25 T	bis(2-Chloroethoxy)methane	0.524	0.478	8.7	127	-0.01
26 C	2,4-Dichlorophenol	0.328	0.342	-4.2	138	-0.01
27 M	1,2,4-Trichlorobenzene	0.331	0.334	-0.8	138	-0.01
28 T	Naphthalene	1.010	0.984	2.5	135	-0.01
29	2,6-Dichlorophenol	0.306	0.307	-0.4	139	0.00
30 T	Benzoic acid	0.134	0.168	-25.5	168	0.01
31 T	4-Chloroaniline	0.377	0.356	5.7	125	-0.01
32 C	Hexachlorobutadiene	0.155	0.158	-2.1	139	-0.01
33 M C	4-Chloro-3-methylphenol	0.265	0.277	-4.4	136	-0.01
34 T	2-Methylnaphthalene	0.646	0.645	0.1	137	-0.01
35 I	Acenaphthene-d10	1.000	1.000	0.0	136	-0.01
36 P	Hexachlorocyclopentadiene	0.167	0.176	-5.5	144	0.00
37 C	2,4,6-Trichlorophenol	0.313	0.318	-1.8	142	-0.01
38 T	2,4,5-Trichlorophenol	0.296	0.328	-10.7	146	0.00
39 S	2-Fluorobiphenyl	1.063	1.004	5.5	141	-0.01
40 T	2-Chloronaphthalene	1.059	1.027	3.1	138	-0.01

(#) = Out of Range

2.D NEW8270D.M Tue Jul 07 10:23:47 1998

MSD

Page 1

Evaluate Continuing Calibration Report

Data File : D:\DATA\070798\2.D
 Acq On : 7 Jul 98 9:50 am
 Sample : SSTD050 07-07-98
 Misc : E0630

Vial: 2
 Operator: SKUMAR
 Inst : 5971-hp5
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\NEW8270D.M
 Title : SW-846; Method 8270 Semivolatile Organics
 Last Update : Mon Jul 06 12:55:04 1998
 Response via : Single Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
41 T	2-Nitroaniline	0.311	0.301	3.2	135	-0.01
42 T	Acenaphthylene	1.687	1.538	8.8	130	0.00
43 T	Dimethylphthalate	1.226	1.248	-1.8	148	-0.01
44 T	2,6-Dinitrotoluene	0.290	0.281	2.9	134	0.00
45 M C	Acenaphthene	1.012	0.988	2.4	140	0.00
46 T	3-Nitroaniline	0.265	0.260	1.6	139	0.00
47 P	2,4-Dinitrophenol	0.102	0.098	4.2	134	-0.01
48 T	Dibenzofuran	1.378	1.334	3.2	138	-0.01
49 M P	4-Nitrophenol	0.055	0.068	-21.9	171	-0.01
50 M	2,4-Dinitrotoluene	0.346	0.372	-7.6	146	-0.01
51 T	2,3,4,6-Tetrachlorophenol	0.190	0.221	-16.0	157	-0.01
52 T	Fluorene	1.080	1.034	4.3	138	0.00
53 T	4-Chlorophenyl-phenylether	0.450	0.437	3.0	139	-0.01
54 T	Diethylphthalate	1.154	1.194	-3.5	150	0.00
55 T	4-Nitroaniline	0.192	0.211	-9.9	148	-0.01
56 I	Phenanthrene-d10	1.000	1.000	0.0	140	-0.01
57 T	4,6-Dinitro-2-methylphenol	0.135	0.132	2.2	137	-0.01
58 C	n-Nitrosodiphenylamine	0.508	0.475	6.4	139	-0.01
59	Azobenzene	1.003	0.919	8.3	136	0.00
60 S	2,4,6-Tribromophenol	0.112	0.108	3.7	143	-0.01
61 T	4-Bromophenyl-phenylether	0.215	0.214	0.7	145	-0.01
62 T	Hexachlorobenzene	0.257	0.264	-2.8	153	0.00
63 M C	Pentachlorophenol	0.091	0.099	-9.7	159	-0.01
64 T	Phenanthrene	1.049	1.005	4.2	143	-0.01
65 T	Anthracene	1.031	0.966	6.3	137	-0.01
66	Carbazole	0.809	0.821	-1.5	148	-0.01
67 T	Di-n-butylphthalate	1.368	1.395	-2.0	150	-0.01
68 C	Fluoranthene	0.761	0.688	9.5	133	-0.01
69 I	Chrysene-d12	1.000	1.000	0.0	114	-0.01
70 T	Benzidine	0.182	0.217	-19.0	141	-0.01
71 M	Pyrene	2.260	2.259	0.0	129	-0.01
72 S	Terphenyl-d14	1.245	1.217	2.3	134	-0.01
73 T	Butylbenzylphthalate	1.108	1.221	-10.2	137	-0.01
74 T	3,3'-Dichlorobenzidine	0.191	0.226	-18.2	150	-0.02
75 T	Benzo[a]anthracene	1.186	1.164	1.9	121	-0.01
76 T	Chrysene	1.142	1.112	2.6	119	-0.02
77 T	bis(2-Ethylhexyl)phthalate	1.463	1.561	-6.7	129	-0.01
78 I	Perylene-d12	1.000	1.000	0.0	138	-0.01
79 C	Di-n-octylphthalate	2.788	2.803	-0.5	121	-0.01

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : D:\DATA\070798\2.D Vial: 2
Acq On : 7 Jul 98 9:50 am Operator: SKUMAR
Sample : SSTD050 07-07-98 Inst : 5971-hp5
Misc : E0630 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\NEW8270D.M
Title : SW-846; Method 8270 Semivolatile Organics
Last Update : Mon Jul 06 12:55:04 1998
Response via : Single Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
80	T	Benzo[b]fluoranthene	1.188	1.135	4.5	116	-0.02
81	T	Benzo[k]fluoranthene	1.185	1.148	3.1	129	-0.02
82	C	Benzo[a]pyrene	0.987	0.970	1.7	124	-0.02
83	T	Indeno[1,2,3-cd]pyrene	0.804	0.876	-8.9	136	-0.03
84	T	Dibenz[a,h]anthracene	0.639	0.709	-10.9	137	-0.03
85	T	Benzo[g,h,i]perylene	0.643	0.721	-12.1	138	-0.03

SECTION D
QA/QC DOCUMENTATION
TCLP VOCs

Sample Hold Time Table
Volatile Matrix Spike/Matrix Spike Duplicate Recovery Tables
Initial and Continuing Calibration Reports

QA/QC SUPPORT DOCUMENTATION
Volatile Organic Compounds
SAMPLE HOLDING TIMES

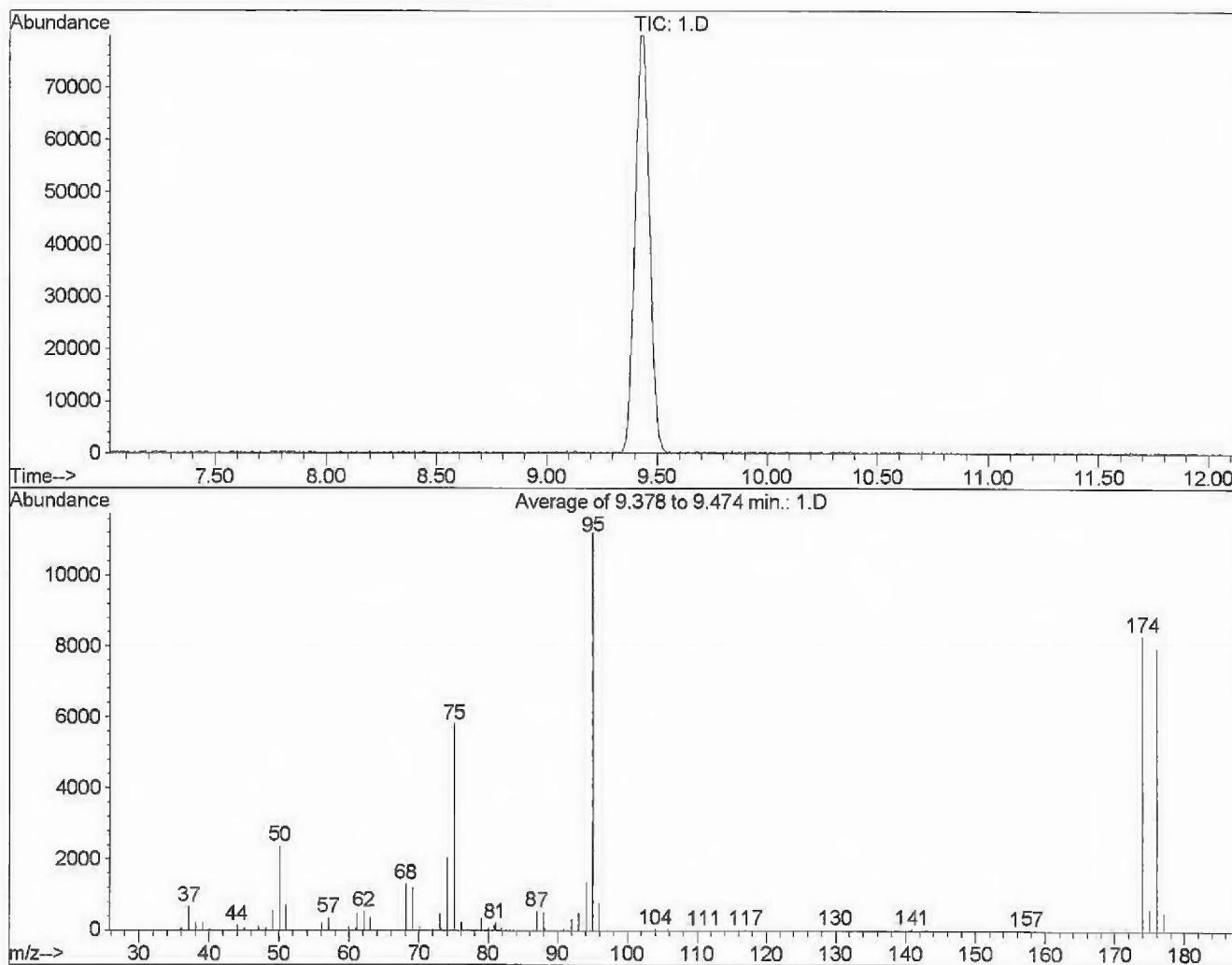
The sample holding time for all VOC analyses performed in accordance with USEPA Method 8260 for this sample set is 14 days from the sample collection date. The following table summarizes the dates of collection, extraction and analysis of this sample set.

CLPBFB

Data File : D:\DATA\070298A\1.D
 Acq On : 2 Jul 98 8:32 am
 Sample : TUNE 070298A
 Misc : BA1899

Vial: 99
 Operator:
 Inst : GC/MS Vol
 Multiplr: 1.00

MS Integration Params: rteint.p
 Method : C:\HPCHEM\1\METHODS\8260I.M (RTE Integrator)
 Title : GC/MS VOLATILES INST. #1 (5970)



Spectrum Information: Average of 9.378 to 9.474 min.

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	21.1	2366	PASS
75	95	30	60	51.7	5793	PASS
95	95	100	100	100.0	11200	PASS
96	95	5	9	6.7	749	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	74.1	8304	PASS
175	174	5	9	7.4	615	PASS
176	174	95	101	95.6	7942	PASS
177	176	5	9	6.5	518	PASS

QC/QA SUMMARY REPORT

TCLP VOLATILES BY GC/MS METHOD 8260

Sample Preparation Method: 5030 B
 Sample Preparation Date: 6/11/98
 Sample Analysis Date: 6/11/98

EPA Method 8260	Practical Quant. Limit (PQL)	Blank Result	Blank Spike Amount	Blank Spike Result	Blank Spike percent Rec	Sample Result	Matrix Spike Amount	Matrix Spike Result	Matrix Spike Dup Result	Matrix Spike Rec	Matrix Spike Dup Rec	Rel % diff (RPD)
		Units	mg/L	mg/L	%	mg/L	mg/L	mg/L	mg/L	mg/L	%	%
Volatile Compounds												
Benzene	0.010	<0.010	0.0200	0.0208	104	<0.010	0.0200	0.0193	0.0195	96.5	97.5	1.03
Chlorobenzene	0.010	<0.010	0.0200	0.0210	105	<0.010	0.0200	0.0201	0.0201	100	100	0
1,4-Dichlorobenzene	0.010	<0.010	0.0200	0.0219	110	<0.010	0.0200	0.0186	0.0182	93.0	91.0	2.17
2-Butanone (MEK)	0.10	<0.10	0.100	0.109	109	<0.10	0.100	0.0872	0.0909	87.2	90.9	4.16
Carbon tetrachloride	0.010	<0.010	0.0200	0.0208	104	<0.010	0.0200	0.0193	0.0190	96.5	95.0	1.57
Chloroform	0.010	<0.010	0.0200	0.0211	106	<0.010	0.0200	0.0202	0.0199	101	99.5	1.50
1,2-Dichloroethane	0.010	<0.010	0.0200	0.0209	104	<0.010	0.0200	0.0190	0.0197	95.0	98.5	3.62
1,1-Dichloroethene	0.010	<0.010	0.0200	0.0199	99.5	<0.010	0.0200	0.0206	0.0202	103	101	1.96
Tetrachloroethylene	0.010	<0.010	0.0200	0.0211	106	<0.010	0.0200	0.0203	0.0235	102	118	14.6
Trichloroethylene	0.010	<0.010	0.0200	0.0216	108	<0.010	0.0200	0.0198	0.0198	99.0	99.0	0
Vinyl chloride	0.010	<0.010	0.0200	0.0216	108	<0.010	0.0200	0.0204	0.0212	102	106	3.85

Samples included in this analytical batch:

DL20255-1

Comments:

Spiked Sample ID: DL20057-1
 Analyst Initials: PB

DLZ Laboratories, Inc. Controlled Document

Volatile Initial Calibration Report

The selected semi-volatile compounds were calibrated on June 15, 1998 on the 5970 instrument

This calibration is applicable to the following Samples:

DL20255-1

Response Factor Report GC/MS Vol

Method : C:\HPCHEM\1\METHODS\8260I.M (RTE Integrator)
 Title : GC/MS VOLATILES INST. #1 (5970)
 Last Update : Mon Jun 15 15:25:50 1998
 Response via : Continuing Calibration

Calibration Files

1	=10.D	5	=9.D	10	=8.D
20	=7.D	30	=6.D	50	=5.D

	Compound	1	5	10	20	30	50	Avg	%RSD
<hr/>									
1) I	Pentafluorobenzene					-----ISTD-----			
2) T	Dichlorodifluoromethane	0.510	0.373	0.449	0.490	0.496	0.496	0.466	10.22
3) TP	Chloromethane	0.887	0.598	0.644	0.669	0.613	0.600	0.657	16.04
4) TC	Vinyl Chloride	0.421	0.415	0.457	0.453	0.472	0.449	0.441	5.06
5) T	Bromomethane	0.425	0.285	0.249	0.326	0.296	0.279	0.297	22.03
6) T	Chloroethane	0.356	0.291	0.297	0.284	0.298	0.291	0.290	14.18
7) T	Trichlorofluoromethane	0.915	0.729	0.787	0.769	0.802	0.812	0.782	10.00
8) T	Diethyl Ether	0.295	0.234	0.277	0.274	0.272	0.275	0.270	6.89
9) T	Acrolein	0.103	0.056	0.065	0.067	0.055	0.060	0.066	25.49
10) TMC	1,1-Dichloroethene	0.407	0.362	0.457	0.476	0.451	0.434	0.435	8.92
11) T	Acetone	0.085	0.057	0.064	0.075	0.056	0.053	0.063	19.83
12) T	Iodomethane	0.833	0.644	0.729	0.701	0.712	0.679	0.709	8.72
13) T	Carbon Disulfide	1.243	1.244	1.457	1.537	1.467	1.419	1.388	8.18
14) t	Acetonitrile	0.095	0.072	0.101	0.093	0.071	0.068	0.080	19.84
15) T	Methylene Chloride	0.718	0.548	0.606	0.588	0.546	0.546	0.584	11.03
16) T	Acrylonitrile	0.199	0.181	0.221	0.235	0.191	0.188	0.201	9.94
17) T	trans-1,2-Dichloroethane	0.539	0.459	0.504	0.556	0.520	0.496	0.508	6.67
18) t	n-Hexane	0.641	0.585	0.631	0.623	0.569	0.556	0.587	8.20
19) T	Methyl-tert-butyl E	1.386	1.172	1.403	1.357	1.230	1.184	1.259	9.81
20) TP	1,1-Dichloroethane	0.960	0.912	1.025	1.048	0.973	0.939	0.969	5.24
21) t	Ethyl Acetate	0.097	0.086	0.106	0.107	0.088	0.086	0.093	11.13
22) T	Vinyl Acetate	0.862	0.964	1.104	1.043	1.097	1.108	1.037	8.88
23) T	Isopropylether	1.833	1.609	1.923	1.901	1.783	1.708	1.775	6.71
24) T	2,2-Dichloropropane	0.601	0.547	0.663	0.678	0.661	0.636	0.625	7.56
25) T	cis-1,2-Dichloroethane	0.626	0.575	0.668	0.687	0.636	0.620	0.630	6.14
26) T	2-Butanone	0.093	0.077	0.099	0.109	0.084	0.079	0.088	13.90
27) T	Bromochloromethane	0.281	0.284	0.320	0.328	0.311	0.303	0.304	5.77
28) T	Tetrahydrofuran	0.219	0.188	0.235	0.259	0.203	0.188	0.211	13.36
29) TC	Chloroform	1.134	0.981	1.090	1.155	1.085	1.053	1.077	5.46
30) T	1,1,1-Trichloroethane	0.788	0.733	0.891	0.894	0.849	0.828	0.829	6.89
31) I	1,4-Difluorobenzene					-----ISTD-----			
32) S	Dibromofluoromethane	0.338	0.350	0.348	0.345	0.347	0.352	0.321	21.00
33) T	Carbon Tetrachloride	0.283	0.297	0.351	0.348	0.366	0.369	0.340	10.26
34) T	1,1-Dichloropropene	0.490	0.432	0.476	0.464	0.466	0.446	0.459	4.62
35) MT	Benzene	1.257	1.145	1.274	1.211	1.233	1.177	1.207	4.22
36) T	1,2-Dichloroethane	0.559	0.509	0.585	0.552	0.549	0.530	0.544	4.69
37) MT	Trichloroethene	0.386	0.335	0.388	0.373	0.370	0.356	0.366	5.21
38) TC	1,2-Dichloropropane	0.306	0.303	0.350	0.336	0.333	0.320	0.323	5.41
39) T	Dibromomethane	0.224	0.220	0.255	0.241	0.244	0.235	0.236	5.03
40) T	Bromodichloromethane	0.327	0.350	0.430	0.438	0.448	0.455	0.415	12.93
41) T	2-Chloroethyl vinyl ether	0.088	0.089	0.108	0.114	0.116	0.120	0.107	12.41
42) T	cis-1,3-Dichloropropane	0.337	0.416	0.506	0.517	0.520	0.519	0.477	15.13

Response Factor Report GC/MS Vol

Method : C:\HPCHEM\1\METHODS\8260I.M (RTE Integrator)
 Title : GC/MS VOLATILES INST. #1 (5970)
 Last Update : Mon Jun 15 15:25:50 1998
 Response via : Continuing Calibration

Calibration Files

1	=10.D	5	=9.D	10	=8.D
20	=7.D	30	=6.D	50	=5.D

	Compound	1	5	10	20	30	50	Avg	%RSD
<hr/>									
43)	T 4-Methyl-2-pentanon	0.035	0.055	0.067	0.068	0.059	0.057	0.057	18.94
44)	S Toluene-d8	1.196	1.198	1.201	1.187	1.180	1.185	1.105	20.62
45)	MTC Toluene	0.818	0.751	0.821	0.771	0.779	0.755	0.776	4.24
46)	T trans-1,3-Dichloropropene	0.348	0.398	0.509	0.528	0.530	0.534	0.483	15.93
47)	T 1,1,2-Trichloroethane	0.266	0.251	0.299	0.280	0.282	0.273	0.273	5.67
48)	T 2-Hexanone	0.325	0.313	0.386	0.401	0.334	0.320	0.340	11.34
49)	T 1,2-Dibromoethane	0.322	0.318	0.377	0.356	0.362	0.360	0.350	6.24
50)	S 4-Bromofluorobenzene	0.503	0.522	0.524	0.516	0.516	0.480	20.24	
51)	I Chlorobenzene-d5	-----ISTD-----							
52)	TP Bromoform	0.136	0.149	0.205	0.234	0.243	0.252	0.213	24.64
53)	T 1,3-Dichloropropane	0.632	0.550	0.634	0.639	0.596	0.574	0.600	5.94
54)	T Tetrachloroethene	0.358	0.294	0.314	0.314	0.298	0.292	0.309	7.42
55)	T Dibromochloromethane	0.233	0.263	0.341	0.345	0.371	0.375	0.331	18.10
56)	MTP Chlorobenzene	1.128	0.951	1.076	1.070	1.014	0.984	1.029	6.19
57)	T 1,1,1,2-Tetrachloroethane	0.145	0.274	0.342	0.342	0.345	0.345	0.307	24.83
58)	MTC Ethylbenzene	1.945	1.703	1.860	1.853	1.765	1.705	1.786	5.70
59)	MT p,m-Xylene	0.698	0.608	0.655	0.617	0.622	0.593	0.708	28.85
60)	MT o-Xylene	0.611	0.612	0.660	0.616	0.629	0.592	0.616	3.93
61)	T Styrene	1.019	0.978	1.111	1.129	1.109	1.063	1.067	5.10
62)	I 1,4-Dichlorobenzene-d	-----ISTD-----							
63)	T Isopropylbenzene	3.282	3.014	3.182	3.066	3.122	2.947	3.068	4.64
64)	T Bromobenzene	0.800	0.729	0.807	0.758	0.793	0.745	0.767	4.26
65)	TP 1,1,2,2-Tetrachloroethane	0.920	0.918	1.089	1.053	1.046	1.002	1.003	6.58
66)	T 1,2,3-Trichloropropene	1.123	1.118	1.354	1.375	1.337	1.260	1.256	8.50
67)	T trans-1,4-Dichloroethane	0.203	0.224	0.309	0.330	0.331	0.319	0.291	18.44
68)	T n-Propylbenzene	4.446	3.982	4.104	3.975	4.014	3.753	3.985	6.57
69)	T 2-Chlorotoluene	2.656	2.417	2.557	2.457	2.486	2.341	2.458	5.03
70)	T 4-Chlorotoluene	2.903	2.523	2.647	2.526	2.585	2.419	2.567	6.88
71)	T 1,3,5-Trimethylbenzene	2.926	2.705	2.876	2.696	2.781	2.626	2.741	4.66
72)	T tert-Butylbenzene	2.416	2.245	2.349	2.243	2.310	2.170	2.266	4.41
73)	T 1,2,4-Trimethylbenzene	3.156	2.821	2.984	2.827	2.887	2.719	2.869	5.59
74)	T sec-Butylbenzene	4.017	3.607	3.723	3.514	3.592	3.362	3.588	6.64
75)	T 1,3-Dichlorobenzene	1.823	1.535	1.618	1.513	1.576	1.491	1.573	7.81
76)	T 1,4-Dichlorobenzene	1.900	1.635	1.673	1.566	1.638	1.559	1.647	7.29
77)	T p-Isopropyltoluene	3.393	3.035	3.070	2.961	3.020	2.802	3.000	7.20
78)	T 1,3-Diethylbenzene	2.018	1.776	1.840	1.736	1.816	1.703	1.799	6.10
79)	T 1,2-Dichlorobenzene	1.672	1.502	1.609	1.518	1.567	1.501	1.555	4.20
80)	T 1,4-Diethylbenzene	3.185	2.688	2.971	2.822	2.641	2.665	2.799	7.51
81)	T n-Butylbenzene	4.323	3.487	3.547	3.434	3.358	3.137	3.490	11.47
82)	T 1,2-Diethylbenzene	0.692	0.666	0.707	0.659	0.680	0.641	0.672	3.32
83)	T Hexachloroethane	0.160	0.198	0.234	0.262	0.277	0.287	0.244	20.30
84)	T 1,2-Dibromo-3-chloro	0.146	0.149	0.203	0.229	0.211	0.205	0.194	17.02

(#) = Out of Range ### Number of calibration levels exceeded format ###
 8260I.M Tue Jul 07 11:24:25 1998 PATRICK Page 2

Response Factor Report GC/MS Vol

Method : C:\HPCHEM\1\METHODS\8260I.M (RTE Integrator)
Title : GC/MS VOLATILES INST. #1 (5970)
Last Update : Mon Jun 15 15:25:50 1998
Response via : Continuing Calibration

Calibration Files

1	=10.D	5	=9.D	10	=8.D
20	=7.D	30	=6.D	50	=5.D

	Compound	1	5	10	20	30	50	Avg	%RSD
85)	T 1,2,4-Trichlorobenz	1.240	1.006	1.057	0.937	1.037	0.979	1.036	9.45
86)	T Hexachlorobutadiene	0.475	0.400	0.417	0.408	0.415	0.389	0.413	7.35
87)	T Napthalene	3.625	2.999	3.401	3.178	3.205	3.043	3.206	7.34
88)	T 1,2,3-Trichlorobenz	1.164	0.959	1.002	0.881	0.998	0.936	0.985	9.02
89)	T 2-Methylnaphthalene	1.690	1.289	1.526	1.414	1.527	1.490	1.479	8.44

Evaluate Continuing Calibration Report

Data File : D:\DATA\070298A\2.D
 Acq On : 2 Jul 98 8:59 am
 Sample : DLY STD 070298A
 Misc : BA1899
 MS Integration Params: rteint.p

Vial: 3
 Operator:
 Inst : GC/MS Vol
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8260I.M (RTE Integrator)
 Title : GC/MS VOLATILES INST. #1 (5970)
 Last Update : Mon Jun 15 15:25:50 1998
 Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I Pentafluorobenzene	1.000	1.000	0.0	79	0.02
2	T Dichlorodifluoromethane	0.466	0.483	-3.6	77	0.03
3	TP Chloromethane	0.657	0.617	6.1	72	0.03
4	TC Vinyl Chloride	0.441	0.436	1.1#	76	0.02
5	T Bromomethane	0.297	0.312	-5.1	75	0.04
6	T Chloroethane	0.290	0.270	6.9	75	0.03
7	T Trichlorofluoromethane	0.782	0.794	-1.5	81	0.02
8	T Diethyl Ether	0.270	0.295	-9.3	85	0.04
9	T Acrolein	0.066	0.030	54.5#	35#	0.03
10	TMC 1,1-Dichloroethene	0.435	0.462	-6.2	76	0.02
11	T Acetone	0.063	0.077	-22.2	80	0.02
12	T Iodomethane	0.709	0.745	-5.1	84	0.02
13	T Carbon Disulfide	1.388	1.449	-4.4	74	0.02
14	t Acetonitrile	0.080	0.018	77.5#	15#	0.03
15	T Methylene Chloride	0.584	0.610	-4.5	82	0.02
16	T Acrylonitrile	0.201	0.227	-12.9	76	0.03
17	T trans-1,2-Dichloroethene	0.508	0.528	-3.9	75	0.02
18	t n-Hexane	0.587	0.166	71.7#	21#	0.03
19	T Methyl-tert-butyl Ether	1.259	0.848	32.6#	49#	0.02
20	TP 1,1-Dichloroethane	0.969	0.968	0.1	73	0.03
21	t Ethyl Acetate	0.093	0.002	97.8#	1#	0.02
22	T Vinyl Acetate	1.037	0.910	12.2	69	0.02
23	T Isopropylether	1.775	1.674	5.7	69	0.02
24	T 2,2-Dichloropropane	0.625	0.717	-14.7	83	0.02
25	T cis-1,2-Dichloroethene	0.630	0.698	-10.8	80	0.02
26	T 2-Butanone	0.088	0.112	-27.3#	81	0.02
27	T Bromochloromethane	0.304	0.353	-16.1	85	0.02
28	T Tetrahydrofuran	0.211	0.271	-28.4#	82	0.02
29	TC Chloroform	1.077	1.169	-8.5	80	0.02
30	T 1,1,1-Trichloroethane	0.829	0.910	-9.8	80	0.03
31	I 1,4-Difluorobenzene	1.000	1.000	0.0	77	0.02
32	S Dibromofluoromethane	0.321	0.341	-6.2	76	0.03
33	T Carbon Tetrachloride	0.340	0.347	-2.1	77	0.02
34	T 1,1-Dichloropropene	0.459	0.449	2.2	75	0.02
35	MT Benzene	1.207	1.228	-1.7	78	0.02
36	T 1,2-Dichloroethane	0.544	0.553	-1.7	77	0.02
37	MT Trichloroethene	0.366	0.365	0.3	76	0.02
38	TC 1,2-Dichloropropane	0.323	0.321	0.6	74	0.02
39	T Dibromomethane	0.236	0.264	-11.9	85	0.02
40	T Bromodichloromethane	0.415	0.459	-10.6	81	0.02

(#) = Out of Range

2.D 8260I.M Tue Jul 07 11:25:54 1998

PATRICK

Page 1

Evaluate Continuing Calibration Report

Data File : D:\DATA\070298A\2.D
 Acq On : 2 Jul 98 8:59 am
 Sample : DLY STD 070298A
 Misc : BA1899
 MS Integration Params: rteint.p

Vial: 3
 Operator:
 Inst : GC/MS Vol
 Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\8260I.M (RTE Integrator)
 Title : GC/MS VOLATILES INST. #1 (5970)
 Last Update : Mon Jun 15 15:25:50 1998
 Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
41 T	2-Chloroethyl vinyl ether	0.107	0.013	87.9#	9#	0.03
42 T	cis-1,3-Dichloropropene	0.477	0.508	-6.5	76	0.02
43 T	4-Methyl-2-pentanone	0.057	0.081	-42.1#	92	0.02
44 S	Toluene-d8	1.105	1.133	-2.5	74	0.03
45 MTC	Toluene	0.776	0.809	-4.3	81	0.02
46 T	trans-1,3-Dichloropropene	0.483	0.516	-6.8	76	0.02
47 T	1,1,2-Trichloroethane	0.273	0.296	-8.4	82	0.02
48 T	2-Hexanone	0.340	0.421	-23.8	81	0.02
49 T	1,2-Dibromoethane	0.350	0.404	-15.4	88	0.01
50 S	4-Bromofluorobenzene	0.480	0.519	-8.1	78	0.02
51 I	Chlorobenzene-d5	1.000	1.000	0.0	85	0.02
52 TP	Bromoform	0.213	0.254	-19.2	92	0.00
53 T	1,3-Dichloropropane	0.600	0.597	0.5	79	0.02
54 T	Tetrachloroethene	0.309	0.321	-3.9	87	0.02
55 T	Dibromochloromethane	0.331	0.375	-13.3	92	0.02
56 MTP	Chlorobenzene	1.029	1.040	-1.1	82	0.02
57 T	1,1,1,2-Tetrachloroethane	0.307	0.354	-15.3	88	0.01
58 MTC	Ethylbenzene	1.786	1.773	0.7	81	0.01
59 MT	p,m-Xylene	0.708	0.645	8.9	89	0.01
60 MT	o-Xylene	0.616	0.641	-4.1	88	0.01
61 T	Styrene	1.067	1.105	-3.6	83	0.02
62 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	83	0.00
63 T	Isopropylbenzene	3.068	3.063	0.2	82	0.02
64 T	Bromobenzene	0.767	0.788	-2.7	86	0.02
65 TP	1,1,2,2-Tetrachloroethane	1.003	1.148	-14.5	90	0.02
66 T	1,2,3-Trichloropropane	1.256	1.280	-1.9	77	0.02
67 T	trans-1,4-Dichloro-2-butene	0.291	0.223	23.4	56	0.00
68 T	n-Propylbenzene	3.985	3.900	2.1	81	0.01
69 T	2-Chlorotoluene	2.458	2.434	1.0	82	0.02
70 T	4-Chlorotoluene	2.567	2.499	2.6	82	0.02
71 T	1,3,5-Trimethylbenzene	2.741	2.731	0.4	84	0.02
72 T	tert-Butylbenzene	2.266	2.279	-0.6	84	0.01
73 T	1,2,4-Trimethylbenzene	2.869	2.890	-0.7	84	0.01
74 T	sec-Butylbenzene	3.588	3.512	2.1	82	0.01
75 T	1,3-Dichlorobenzene	1.573	1.586	-0.8	86	0.01
76 T	1,4-Dichlorobenzene	1.647	1.657	-0.6	87	0.02
77 T	p-Isopropyltoluene	3.000	2.952	1.6	82	0.01
78 T	1,3-Diethylbenzene	1.799	1.764	1.9	84	0.01
79 T	1,2-Dichlorobenzene	1.555	1.604	-3.2	87	0.02

(#) = Out of Range

2.D 8260I.M Tue Jul 07 11:26:02 1998

PATRICK

Page 2

Evaluate Continuing Calibration Report

Data File : D:\DATA\070298A\2.D Vial: 3
 Acq On : 2 Jul 98 8:59 am Operator:
 Sample : DLY STD 070298A Inst : GC/MS Vol
 Misc : BA1899 5ml Multiplr: 1.00
 MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\8260I.M (RTE Integrator)
 Title : GC/MS VOLATILES INST. #1 (5970)
 Last Update : Mon Jun 15 15:25:50 1998
 Response via : Single Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
 Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
80 T	1,4-Diethylbenzene	2.799	2.798	0.0	82	0.02
81 T	n-Butylbenzene	3.490	3.185	8.7	77	0.01
82 T	1,2-Diethylbenzene	0.672	0.672	0.0	84	0.01
83 T	Hexachloroethane	0.244	0.237	2.9	75	0.00
84 T	1,2-Dibromo-3-chloropropane	0.194	0.251	-29.4#	90	0.01
85 T	1,2,4-Trichlorobenzene	1.036	0.980	5.4	86	0.02
86 T	Hexachlorobutadiene	0.413	0.345	16.5	70	0.02
87 T	Naphthalene	3.206	3.287	-2.5	85	0.02
88 T	1,2,3-Trichlorobenzene	0.985	0.933	5.3	87	0.01
89 T	2-Methylnaphthalene	1.479	1.121	24.2	65	0.02

(#) = Out of Range

SPCC's out = 0 CCC's out = 1

2.D 8260I.M

Tue Jul 07 11:26:04 1998

PATRICK

Page 3

**SECTION E
METALS
QA/QC DOCUMENTATION- MICHIGAN METALS KIT**

Sample Hold Time Table

Total Mercury (Atomic Absorption, Cold Vapor Technique)
(EPA Methods 7471A, 7470A)

Aqueous Phase TCLP

Digestion using EPA Method 3005A

Total Michigan 10 Metals (Cr, Cu, Zn, As, Se, Ag, Cd, Ba, & Pb)
with Inductively Coupled Plasma-MS
(EPA Method 6020)

**QA/QC SUPPORT DOCUMENTATION
METALS EXTRACTIONS & ANALYSIS
SAMPLE HOLDING TIMES**

The sample hold time for all metals digestions with the exception of Hg and Cr(VI) performed in accordance with USEPA Method 3005A or 3050A or B for this sample set is six months. Mercury has a maximum holding time of 28 days from the sample collection date when digested and analyzed in accord with method 7471 and Cr(VI) has a maximum holding time of 24 hours from the time of collection. This only applies when each sample is properly preserved for the analyte types to be examined. TCLP extractions for the generalized metal analytes again excepting Hg and Cr(VI) must be performed within 180 days from the sample collection date. Determinative analysis for the generalized metals must also be performed within six months form the sample collection date. The TCLP extract for generalized metals must be digested and analyzed within 180 days from the date the extract was prepared. The following table summarizes the dates of collection, digestion, and analysis for this sample set.

DLZ LABORATORIES, INC. CONTROLLED DOCUMENT
QC/QA SUMMARY REPORT
ICP/MS TECHNIQUE, EPA METHOD 6020-TCLP EXTRACT Aq Phase SAMPLES

MICHIGAN 10 METALS

PARAMETERS	Cr	Cu	Zn	As	Se	Ag	Cd	Ba	Pb
GENERAL	Analyst: PH								
Digestion Method	3005A	3005A	3005A	3005A	3005A	3005A	3005A	3005A	3005A
Batch # Date	7/2/98	7/2/98	7/2/98	7/2/98	7/2/98	7/2/98	7/2/98	7/2/98	7/2/98
RDL mg/L	0.500	10.000	50.000	0.500	0.100	0.5000	0.1000	10.000	0.500
Analysis date	7/6/98	7/6/98	7/6/98	7/6/98	7/6/98	7/6/98	7/6/98	7/6/98	7/6/98
Analytical Run ID	M980706-1	M980706-1	M980706-1	M980706-1	M980706-1	M980706-1	M980706-1	M980706-1	M980706-1
Lab Project #	DL20255	DL20255	DL20255	DL20255	DL20255	DL20255	DL20255	DL20255	DL20255
Lab Sample #	1	1	1	1	1	1	1	1	1
INSTRUMENT / CALIBRATION INFORMATION									
Initial Cal. Blank mg/L	<0.001	<0.001	<0.004	<0.001	<0.001	<0.0005	<0.0002	<0.001	<0.001
Cont. Cal Blank mg/L	<0.001	<0.001	<0.004	<0.001	<0.001	<0.0005	<0.0002	<0.001	<0.001
CCS Conc. mg/L	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Initial CCS Rec. %	102	102	101	102	104	102	102	101	103
Cont. CCS Conc. mg/L	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
Cont. CCS Rec. %	108	105	108	97	94	93	96	101	101
CCS Rec. Criteria %	90-110	90-110	90-110	90-110	90-110	90-110	90-110	90-110	90-110
LCS Conc. mg/L	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
LCS Rec. %	101	103	103	101	103	101	100	100	100
LCS Rec. Criteria %	90-110	90-110	90-110	90-110	90-110	90-110	90-110	90-110	90-110
Initial ICS Rec. %	102	102	107	96	100	84	100	98	100
Final ICS Rec. %	107	*	*	94	92	NA	95	101	99
ICS Rec. Criteria %	80-120	80-120	80-120	80-120	80-120	NA	80-120	80-120	80-120
METHOD PRECISION & ACCURACY									
Method Blank mg/L	0.007	0.0194	0.062	ND	ND	0.0005	ND	0.006	ND
LFB Conc. mg/L	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
LFB Rec. %	104	105	106	115	114	106	107	109	110
MS/MSD Conc. mg/L	1.000	1.000	1.000	1.000	1.000	0.500	1.000	1.000	1.000
MS/MSD Sample ID	DL20255-1	DL20255-1	DL20255-1	DL20255-1	DL20255-1	DL20255-1	DL20255-1	DL20255-1	DL20255-1
Sample Result mg/L	<0.50	<10	<50	<0.50	<0.10	<0.50	<0.10	<10	6.0000
MS Result mg/L	1.0200	1.9000	(2)	1.1300	1.0700	0.50100	1.08000	(2)	(2)
MSD Result mg/L	1.0300	1.9300	(2)	1.1400	1.0800	0.51800	1.07000	(2)	(2)
RPD %	1.0	1.6	(2)	0.9	0.9	3.3	0.9	(2)	(2)
RPD Criteria %	6.8	6.4	10.6	9.9	10.8	15.5	8.3	5.2	6.0
MS Rec. %	100	98	(2)	112	107	100	107	(2)	(2)
MSD Rec. %	101	101	(2)	113	108	103	106	(2)	(2)
LFB&MS Rec. Criteria %	83-118	80-111	80-120	80-120	80-114	80-120	84-118	82-120	85-120
Notations			(2)			(3)		(2)	(2)
Notations Defined: (1) MS/MSD Failure is due to Matrix interferences (2) Sample concentration exceeds 4 times MS/MSD spike * One sample destroyed end of run control sample recoveries. (3) Method performance for Ag was evaluated on Post Digestion Spikes (4) Blank value does not take preparation into account: 1:4 concentration									

Comments: CCS is Continuing Check Standard, LCS is Laboratory Control Standard, LFB is Lab Fortified Blank,MS/MSD is Matrix/Matrix Spike Duplicate

QC/QA SUMMARY REPORT
GFAA/FAA TECHNIQUES TCLP AQ PHASE SAMPLES

PARAMETERS					Hg
GENERAL					
Digestion Method					7470A
Batch #: Date					7/5/98
Analytical Method					7470A
PQL mg/L					0.020
Analysis date					7/5/98
Analyst					AR
Analytical Run ID					Hg070498-1
Lab Project #					DL20248
Lab Sample #					1
INSTRUMENT / CALIBRATION INFORMATION					
Calibration curve Correlation					0.9999
Linearity					L
Initial Cal. Blank mg/L					<0.0002
MRCS mg/L					0.0050
Initial MRCS Rec 80-120%					100
LCS Conc. mg/L					0.0050
LCS Rec 80-120%					102
Cont. Cal. Blank mg/L					<0.0002
Final Cal. Blank mg/L					<0.0002
Cont. MRCS Rec 80-120%					100
Final MRCS Rec 80-120%					103
METHOD PRECISION & ACCURACY					
Method Blank Rec. mg/L					<0.0002
LFB Conc. mg/L					0.0050
LFB Rec. 80-120%					100
MS/MSD Sample ID					DL20237-2
MS/MSD Conc. mg/L					0.0050
Sample Result mg/L					<0.0002
MS Result mg/L					0.00515
MSD Result mg/L					0.00502
RPD %					2.6
MS Rec. 80-120%					103
MSD Rec. 80-120%					100
Notations					
Notations Defined: (1) MS/MSD Failure is due to Matrix Interferences (2) Sample concentration exceeds 4 times MS/MSD spike					

**SECTION F
INORGANICS
QA/QC DOCUMENTATION**

Flash Point Summary
BTU Summary
pH Summary
TPH Summary
Total Solids Summary

DLZ LABORATORIES
FLASHPOINT

Method: 10(0
Alcohol: ethyl (82°) 80°
Tracking #: A1679

Analyst: PB Date: 7-6-88
Reviewer: _____ Date: _____
Manager: JH Date: 7-6-88

Method: FDI
Alcohol: _____
Tracking #: _____

Analyst: JC Date: 7/6/98
Reviewer: _____ Date: _____
Manager: EHS Date: 7-10-98

DLZ LABORATORIES, INC.
TPH 418.1

Calibration curve

Cone.	Abs.	ρ_{ef}	Prep. Date:
5	0.065	100.5-A	7/1/98
20	0.2348	-B	Analysis Date: 7/1/98
40	0.4697	-C	Analyst: SLS (DWS)
60	0.6496	-D	USACE Spike Witness N/A
80	0.8761	-E	

Correlation Coefficient 0.9995
 Silica Gel # 1213
 Sodium Sulfate # 1361
 Sulfuric Acid # 1194

Polystyrene Check 0.7211

Lab #	@ or mL used	Final volume	Dilution	Percent Solids	Abs.	Initial conc.	Final Conc.	QC Values	Standard and Solvent ID's
18516-1	21.30	100 mL	1:5	7%	.6187	56.14	1729	1303	Freon: 1326
-51	21.21	100 mL	1:5	7%	.5400	45.70	4253	1313	LCS: + 2000uL 2g RT 48.1
-51	20.13	100 mL	1:5	7%	.3749	33.28	3263	01 194	20,1300mg/ml 8uL 100uL-A
-3	21.11	100 mL	1:5	8%	.6442	55.13	1571	01 112	
-3	16.50	100 mL	1:10	8%	.5010	45.34	2546	S1 2524	
18524-1	16.46	100 mL	1:10	8%	.5885	6.85	46.43	S1 1534	Spike: + 1uL each of TPH 4181
18521-1	20.05	100 mL	1:500	7%	.5232	51.00	115711	21,000mg/ml me 8uL 1107-A	
18516-4	20.96	100 mL	—	—	.0013	-1.05	<10	K1 100	
-165	20.10	100 mL	—	—	.3295	21.35	1446	1 1446	Cal. Std:
								01 73	
Sample 18511 had very strong odor and was dark brown when extraction process was finished.									

TCL

DLZ LABORATORIES
pH RUN LOG

Analyst: 5 Reviewed: (5) SM4500 H⁺B. Cal Std ID's: pH 4: ✓
Date: 7/7/98 Date: 7-9-98 9040, 9041, 9045 pH 7: ✓
Slope: N/A

Procedure Name :	Calorific Value
Procedure Number :	32-032
Method Working Range :	5000 - 20 000 BTU/lb
Method Report Level :	NA
Form Revision :	0 (2/98)

Analysis Date :	6-29-98 / 7-1-98
Analyst Initials :	S.C.S.
Ambient Temp :	67 F
D.LZ Laboratories	

Instrument No.	Bowser-Morner Coal No.	Sample Weight (g)	Titration (ml)	% Sulfur (As Determined)	Fuse Wire (cm)	Calculated BTU/lb (As Determined)
6-29-98	808123	.9168	8.9		5.1	8096
" " "	808123	.9694	9.6		4.8	8090
7-1-98	STD	.9967	9.4		3.7	11385
" " "	808123	.35725P.KC	9.5		4.3	7014
" " "	808123	.3234 SP.KC	8.8		5.4	72919
" " "	STD	1.0071	9.7		5.3	11393
" " "	808211	.9646	4.3		6.1	4746
" " "	808211	.6178	4.3		6.9	5215

BENZOIC ACID PELLETS

T.V. RANGE
11373 - 11388

Sample No.(s) :

Non-Conformance Items & Comments

SPURRED SAMPLES consist of
POWDERED BENZOIC

DLZ LABORATORIES
TOTAL SOLIDS (TS) TOTAL VOLATILE SOLIDS (TVS) RUN LOG

Analyst: KB

Reviewer: HS

Method: 2540G TS
2540E TVS

Page 1 of 1

Date: 7-6-98

Date: 7-9-98

Sample ID	Dish #	Dish Wght (gm)	Dish + Wet Sample gms	Dish + Dry Sample gms.	Dish + Ashed Sample gms	% Solids	% Volatile solids	Dup. RPD	Comments
20265-1	10	2.25	22.18	19.98		89.			
20265-2	28	2.25	18.76	16.65		87.			
20265-3	5	2.26	24.25	20.92		85.			
20265-4	4	2.26	26.34	25.26		96.			
20265-5	1	2.27	23.48	19.51		81.			
20265-6	2	2.26	23.49	20.11		84.			
20284-1	9	2.26	19.28	18.81		97.			
20284-2	11	2.25	23.57	22.80		96.			
20285-1	14	2.35	20.80	18.41		87.			
20285-2	3	2.26	22.56	21.28		90.			
20285-3	6	2.26	16.94	15.67		91.			
20285-4	7	2.26	17.81	16.43		91.			
20285-4 dup	8	2.26	15.38	14.11		90.	90.		
20285-5	12	2.27	20.77	17.94		85.			
20285-6	13	2.27	18.93	17.93		93.			
20285-7	15	2.26	18.21	15.38		83.			
20285-8	16	2.26	19.68	18.69		94.			
20285-9	17	2.24	23.83	21.32		83.			
20285-10	18	2.24	14.62	13.80		93.	793		
20285-10 dup	19	2.24	15.63	14.72		93.			
20285-11	20	2.26	18.94	17.15		89.			
20285-12	21	2.24	19.96	18.16		96.			
20285-13	22	2.27	24.11	21.63		89.			
20285-14	23	2.24	20.18	15.60		75.			

KB,